SAINT-PETERSBURG STATE UNIVERSITY
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MASTER THESIS

IMPACT OF ERP SYSTEM ON COMPANY PERFORMANCE IN ADDITIONAL EDUCATION MARKET IN RUSSIA

The 2nd year master student
Concentration — Master in Management,
International Business
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Research advisor: Associate professor,
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АННОТАЦИЯ

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Название ВКР	Влияние ERP системы на результаты деятельности компании на рынке дополнительного образования в России
Образовательная программ	Менеджмент
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Описание цели, задач и основных результатов	Цель данного исследования - определить модули системы ERP и оценить их влияние на результаты деятельности компаний, работающих на рынке дополнительного образования в России. Для достижения указанной цели были поставлены следующие исследовательские задачи: (1) Изучить ERP-систему, ее модули и особенности их использования компаниями на рынке дополнительного образования. (2) Создать модель, позволяющую исследовать природу взаимосвязи между ERP системой, конкурентным преимуществом и эффективностью компании на рынке дополнительного образования. (3) Провести опрос среди владельцев школ-пользователей системы ERP на рынке дополнительного образования. (4) Применить статистический анализ модели и определить влияние системы ERP на конкурентное преимущество и эффективность компании. Результаты исследования показали позитивное влияние ERP системы на конкурентное преимущество и на каждый аспект эффективности компании, включая удовлетворенность клиентов, прибыльность, рыночная эффективность. Также данное исследование показало характер влияния каждого модуля ERP системы отдельно.
Ключевые слова	ERP система, эффективность компании, Конкурентное преимущество, Рынок дополнительного образования.

ABSTRACT

Master Student's Name	Maxim Kitsenko
Master Thesis Title	Impact of ERP system on company performance in Additional Education Market in Russia
Educational Program	Management
Main field of study	International business
Year	2020
Academic Advisor's Name	Sergey A. Yablonsky, Associate Professor
Description of the goal, tasks and main results	The aim of this study is to determine the modules of the ERP system and evaluate their impact on the performance of companies operating in the additional education market in Russia. To achieve this goal, the following research tasks were set: (1) To study the ERP-system, its modules and the features of their use by companies in the market of additional education. (2) To create a model that allows to investigate the nature of the relationship between the ERP system, the competitive advantage and the effectiveness of the company in the additional education market. (3) Conduct a survey among the owners of schools-users of the ERP system in the market of additional education. (4) Apply statistical analysis of the model and determine the impact of the ERP system on the competitive advantage and effectiveness of the company. The results of the study showed the positive impact of the ERP system on the competitive advantage and on every aspect of the company's performance, including customer satisfaction, profitability, market efficiency. Also, this study showed the nature of the influence of each module of the ERP system separately.
Keywords	Enterprise Resource Planning (ERP), Company Performance, Competitive Advantage, Additional Education Market.

CONTENT

INTRODUCTION

Working on efficacy is one of the most important thing that company do every single day in order to become more successful, confidently compete with rivals on the market, becoming stronger and satisfying its clients, and to achieve the growth of efficiency companies are tend to implement modern technologies which help to organize almost and sometimes even all business processes, accelerate the speed of decision-making, increase the quality of the service's providing and producing goods, thus in the end this implemented technologies has great impact on the company's performance.

And one of such complicated, but in the same time very powerful and influential technology is Enterprise Resource Planning (ERP) system. Nowadays, and now many companies work with ERP or CRM-based system, automating business processes from management and control of the employees to logistics and procurement of necessary equipment and goods to operate (Koerber, 2018). One of the main advantage of ERP system is module-based structure and therefore customization: ERP system includes specific independent from each other modules to cover specific business processes or management directions (Customer Relationship Management Module, Human Resource Management Module and etc. (O' Sullivan, 2014) and the company implements and use only those ERP modules that company really needs without any negative effect on other parts of ERP system. Thus, ERP system gives the company opportunity to control company's resources (Romero, 2016), providing detailed analytical reports with full of details about changing of its single item and element of the system, what provides the company with the advantage in terms of increasing of competitive advantage, growth of efficacy and company performance (Yang, 2009).

At the same time, many SMEs are not ready to introduce digitalization and automation tools, and at the same time, the education segment, in particular supplementary education, is actively developing: the number of children is growing every year, developing additionally outside the walls of the main school: the number of schools and educational organizations of various directions that carry out the implementation of educational services in the segment of further education, new educational products, educational programs and methods are actively appearing (DRG, 2017; EdTech, 2017). At the same time, for many SMEs in this market it is not obvious that the introduction of automation and digitalization tools is a necessity in a competitive environment that can have the necessary positive effect on the business results of the company as a whole (Research of Mail Group, Skolkovo, Bank "Открытие", 2019).

The goal of this research is to identify modules of ERP system and asses their impact on company's performance of SMEs operating in additional education market in Russia.

Subject: ERP impact on SMEs company performance in additional education market.

Object: SMEs in B2C segment that use ERP systems operating in Russian market of education (commercial schools of additional education).

Gap: fast growing market of additional education in Russia is very competitive one, and for the companies that want to stay competitive it's required to implement technologies that will impact on competitive advantage and more importantly on company performance, for this purpose it's needed to see the positive cases of implementation such technologies as ERP systems with certain set of modules showing that ERP is an effective instrument of improving company performance, despite the fact that it's mainly costly initiative in terms of limited resources of SMEs, thus in order to create such precise understanding in terms of final value as a positive impact of ERP systems on company performance this paper intents to cover the absence of understanding of ERP value for SMEs operating in additional education market, showing the impact of ERP system on each of the essential indicators of Company Performance for additional education market such as Customer Satisfaction, Profitability and Market Effectiveness.

Identified research gaps caused the following prelaminar list of research questions in order to cover research gap:

1) What are the specific ERP modules in additional education market?

2) How ERP modules impact on competitive advantage and SMEs company performance in additional education market?

Based on the abovementioned research questions the following objectives are determined:

1) Investigate ERP system and specificity of its usage by SMEs in Additional Education Market.
2) Create the model of the relationship between ERP system, Competitive Advantage and Company Performance for Additional Education Market.
3) Conduct survey among ERP system users in Additional Education Market.
4) Apply statistical analysis of the model and determine the impact of ERP system on Competitive Advantage and Company Performance.

Thus, as a result of this study, the nature of impact of ERP system on competitive advantage and company performance will be investigated. So, the main aspects of this study are established, and the next step is to provide literature review that would help to dive deeper in the problem and comprehend specificity of the research field.

1 THEORETICAL CONCEPTS AND BACKGROUND OF THE STUDY

1.1 Digitization, Digitalization and Digital Transformation

Nowadays the world is witnessing the rapid development of technologies and digital technologies, which inevitably change reality, lifestyle, ways of interaction, thinking. Business reality also adapts to new conditions, introducing technologies that allow the organization to be in touch with consumers and increase its competitive advantage, capture a large market share, and expand its sphere of influence. Industry 4.0. (Enterprise Project, 2019) with its already familiar technologies, like big data, the Internet of things, virtual and augmented reality, 3D printing, quantum computing and blockchain, allow businesses, based on them, to create innovative digital products, go through digitalization stages, digitalize business processes and go through full digital transformation.

Digitization as a start point the whole filed that create online business and move out the distance between companies and customers providing more efficient product and service reducing costs thus optimizing certain business process in the organization. Digitization for the business point level means the creation a new way of process operation that lead to making the access to the data more easier, for instance, making information sharing more convenient and fast and analysis more detailed and precise.

Digitalization (Lopez, 2014) focuses on creating a new product in digital form or using new digital channels of sales and interaction with consumers.

Digital transformation is a process of deep transformation of an organization through the use of digital technologies, the purpose of which is to optimize business processes in the company and as a result of productivity growth, improving the quality of interaction with the client.

Digital transformation - despite the fact that it is a digitization of business processes, at the same time, it is based on the intention of strategic business change, which implies technological and cultural transformation of the company's business processes, in which the entire organization is involved. Such changes require a deep analysis of the business and the development of a new strategy.

According to McKinsey Article (McKinsey & Company, 2019), the main goals of digital transformation are:

- Improving customer experience.
- Improving the product and services.
- Optimization of supply marketing and sales.

- Automation of digital logistics.
- Risk optimization, management transformation.

The definition of the goals of digital transformation in turn entails the definition of the following tasks of transformation:

- Seamless communication through single channels.
- The sale of services and products, regardless of time, place and other geo-conditions.
- Increase return on investment ROI internet marketing.
- Supplementing traditional channels with digital ones.
- Automation of supplies.
- Automatic setup of equipment.
- Implementation of a real-time management notification system.
- Automated decision making.
- Virtual service and administration.
- Seamless integration with third-party services.

Digitalization of the company is the basis of customer experience, financial models and business processes that are aimed at such aspects as improving customer experience, studying consumer behavior and their characteristics with the help of end-to-end and detailed business analytics tools, which allows to segment target audience, analyze preferences and prerequisites that explain behavior and interconnection with the decision-making aspect, but also including simply the expectations of users. As part of improving the customer experience, digital transformation involves the use of new technologies to improve sales and user support at each stage of the transaction. This may also include the use of geolocation technologies, social networks, instant messengers and augmented reality to expand the points of interaction with the client.

Digitalization of business processes involves the automation of operations, through the use of programs that perform routine tasks, while freeing up time for creativity and work on the strategy. The use of virtual collaboration platforms, which entails the exchange and dissemination of knowledge. This also includes the ability to work remotely, while the team is provided with sufficient and necessary tools to ensure and improve communication. Digitalization of business processes also implies digitized accurate accounting of employee productivity, which ensures transparency of their work and ease of tracking the impact on the overall result of the team, department and company as a whole, including the impact on decision-making, which are generated based on the received and analyzed data for internal operations, for example.

By updating the business model, it is understood that as the company's digital transformation progresses, the company needs to combine both digital and traditional approaches, as well as adding existing digital products with additional digital functionality, for example, a fitness tracker with GPS and Bluetooth to measure the user's state during the day, training time, track the dynamics of physical development, etc. Also, globalization is included in updating the business model, which implies management and control of employees without reference to the GEO and access to international markets.

Thus, the following advantages of digital transformation can be distinguished:

- Improving efficiency by automating business processes and reducing costs, while combining modern technologies causes a synergistic effect and contributes to the maximum increase in business efficiency as a unit.

- Increasing productivity through the use of modern technologies such as the Internet of things, automated production, data analytics, which allows the company to produce as much or more, but at the same time using less resources: time, finance, employees.

- Increasing the ROI of marketing events and advertising campaigns through the use of modern digital marketing technologies, which has a positive effect on reducing the cost of casting (CAC) and customer retention (CR).

- Transparency of internal activities: all processes can be monitored, measured, for example, by KPI, assessed their impact on other processes of the company.

- Consolidation of data allows the company to collect all the necessary information in one place, for example, a convenient opportunity to interact with customers from various channels in one place (CRM system), which reduces the time it takes to search, process and, as a result, make decisions based on the data received , which is currently an extremely important factor for the success of the company in such rapidly developing modern markets and constantly changing conditions.

- Globalization of trade: as mentioned above, using modern technology allows the company to erase, including the GEO boundaries and the distance between the company's product and service and the buyer, so using modern digital transformation technologies helps the organization enter international markets.

So, the digital transformation of a business is a deep and complex process that requires its own unique and adapted strategy for moving the organization to the digital track of doing business processes and activities in general, which also implies taking into account aspects that can adversely affect the success of digital transformation such as the security of information, data, technologies, the rejection of changes by employees, the difficulty of switching from old platforms to new ones, the limited and isolated databases, the absence of the required competencies of employees, the lack of a

strategic vision and, as a consequence, the inefficiency of management, as well as the lack of a culture of implementation and use of innovation.

Digital transformation is turning an ordinary business into a digital business, the concept of which is understood as the combination of physical and digital business tools and resources, which leads to a reduction in the distance between people and companies. And, according to Sergey Yablonsky (2018), systems that create opportunities for launching, implementing and running a digital business, such systems somehow come to the point that further transformation is necessary to maximize economic results, which leads to the use of an approach at the junction of business and technology and management.

According to recent research of Bank "Открытие", Mail Group, business school Skolkovo, РАЭК (2018) that investigated the readiness of small and mediums size enterprises to digital economy in Russia. This research states that such companies are not ready to business transformation, but understand the advantages that mainly are considered as fast operations and convenient access to information. Thus, investigation ERP systems that considered as a driver of digitalization and digital transformation (Smith 2020, Asprion 2018, Stam 2014), can bring positive impact on comprehending of the small business companies to implement such systems and change current un-readiness companies to be a part of digital economy in Russia as a additional contribution of this study.

One of the tools of digital transformation is the ERP system (ERP News, 2019), the implementation of which accelerates the digitalization of business processes and successful digital transformation, which, in the case of ERP, is based on cloud-based and improved integration, competitive advantage in long-run, extensions of the digital integrated solutions are always available to achieve necessary business results and outcomes, and enhanced scalability what gives the company an opportunity to adopt the latest features with ERP upgrade.

1.2 Enterprise Resource Planning Systems

ERP systems

Many companies all over the world become to comprehending that the company needs Enterprise Resource Planning (ERP) system in order to maintain competitiveness or achieve positive impact on performance and efficiency.

There are many definitions of ERP systems (Buananno, 2005), and some of them are very detailed and complex, some of them are too poor, and analyzing all of them I found out the following definition of such system:

ERP is an information system that allows to store and process all of the necessary and critical data for a company. In other words the program stores, processes and maintains a single database of the company, as well as synchronizes the activities of all departments: the order department, production departments, warehouse, logistics department, accounting, advertising, etc. ERP creates a single information space for all company employees. Data is entered once, and become available to all parts of the ERP system (Guay, 2018).

There is a variety of different ERP solutions with specific advantages and disadvantages in terms of including and taking into account a certain list of business processes that are considered the most important, and so far, there is no perfect software solution for all business processes, but ERP technologies are increasingly integrating them, improving collaboration, helping to make informed decisions based on data and increasing business efficiency (Ali, 2017).

In order to understand a bit more what enterprise resource planning system is, let's look at its architecture. ERP systems have common architecture, which includes the following parts (Motiwalla, 2012):

1 Platform. This part contains basic opportunities for processing of the modules and components.

2 Data management. Contains database, also methods of maintaining and processing (interpreting) of the data. In this

3 Modules. Includes components that can be set up to the platform and used if it's needed, All modules work with one database and use basic functional. Generally, modules are working separately and independently form each other, what means that if the company implements ERP system, it doesn't require to implement all of the modules, instead of only those, that the company really need to apply. Thus, this feature is the most important in ERP architecture logic, making companies be very flexible.

As it was previously said that ERP covers many company functions by ERP modules but let's dig a dipper in some basic of them (O' Sullivan, 2014):

1 Human Resource Management (HRM(. Modern solutions monitor company data and simplify employee management, such as payroll, hiring, etc. In addition, the company' management can monitor employee productivity and identify problems with staff in advance.

2 Product Lifecycle Management (PLM). This feature simplifies business communication, automates day-to-day processes, and helps manufacturers meet customer requests by managing real-time data. In addition, the solution optimizes project and cost management, as well as production planning.

3 Customer Relationship Management (CRM). Gives an opportunity to manage relationships with consumers and clients, and in the same time this module helps to organize working process

establishing goals, time-management and deadlines, planes, etc. This function reflects customer relationship management application (CRM), thus, in case of ERP system CRM as a module is a part of ERP.

4 Supply Chain Management (SCM). If the company' employees are still entering data manually and cannot accurately identify the amount of inventory, the company can easily save time and money by automating these processes using ERP. Modern solutions also simplify product management with dashboards and business intelligence.

5 Quality Management (QM). Includes tools for management of customer-oriented quality, leadership and commitment of top management, continuous improvement, quick response, action based on facts, employee participation and, above all, a quality management culture. Each part of the company is involved in overall quality, working as a client or supplier to each other (Ramco, 2018).

6 Knowledge Management (KM). Stores and retrieves knowledge to improve understanding, collaboration, and process alignment. Knowledge management systems can exist in organizations or teams, but they can also be used to centralize company' knowledge base for its users or customers (Guo, 2006).

7 Performance Management (PM). Covers the cap between strategy and execution by providing a framework in which information can be provided appropriately and at the right time to analyze plans, evaluate objective progress, and evaluate effectiveness (Bhattacharyya, 2011).

8 Financial Management (FM). Provides a comprehensive list of functionalities, including financial accounting, management accounting, while providing tools for the operational management of the organization's finances (O' Sullivan, 2014).

On the figure 1 the concept of enterprise resource planning system is represented as follows:

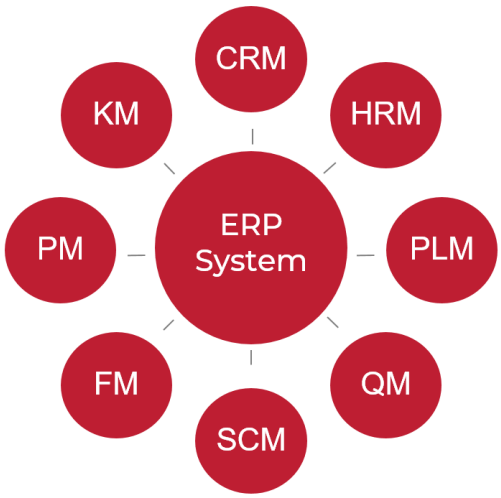


Figure 1 – Modules of ERP system (O' Sullivan, 2014)

Thus, such system allows companies to manage all issues that company need to control in order to grow its effectiveness of producing products and delivering services, automating business processes by contemporary IT solutions, decreasing the number of mistakes that can be made by people, implementing each module and customizing it for company's purposes.

Using ERP system as an IT solution in order to automate business process, optimize them reducing the time consuming also has other advantages (IBM, 2009), such as:

1) Ease of obtaining the necessary information – from a single database, it can be promptly obtained on request.

2) Full control and synchronization of workflows: they can be built according to the company's hierarchy (including those related to the mobile business), to ensure consistency, interconnection of the transfer of tasks from one area to another.

3) Standardization of reporting forms and information systems: when using ERP, all disparate documentation is reduced to a single, orderly, unified model, and all the functions of independent software blocks are integrated into a common system.

4) Simplifying the daily routine operations of all departments (accounting, warehouse, personnel, and so on) - by automating the "minor" procedures, the company can free up a lot of resources and expand management functions.

5) Centralization and high-quality protection of information – in ERP-systems it is easy to set up differentiated access, variable security policies are created, data is stored in a single database and can be controlled.

6) Speeding up work cycles, improving interaction between departments, increasing labor transparency, the ability to organize a corporate system of personnel training, and so on.

ERP works with huge flows of information and data, which connect all modules together, thus the company is able to manage all business processes successfully, getting actual reports and all necessary information that helps to operate, provide services and goods, but also helps in decision making. The figure 2 shows the structure of processing of the data and stages that are involved in it (Koerber, 2018).

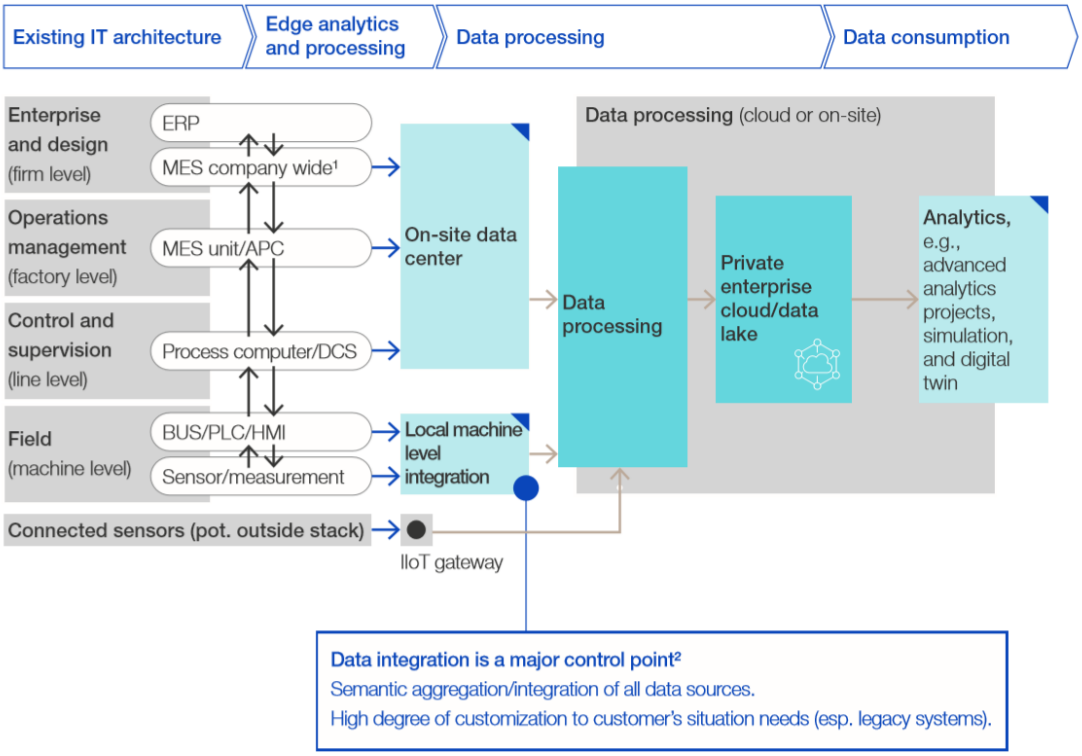


Figure 2 – Structure of processes that connected with ERP system's data (Koerber, 2018)

As we can see, the data integration is a major control point that need to be managed well in order to keep working of ERP system effective and reasonable.

Types of ERP systems

According to research paper of Shivam Gupta (2019), there are several basic types of ERP, and they are as follows: On-premise solutions (local solutions) and cloud-based solutions.

On-premise solutions. This kind is the one that is installed in the companies' computers, hardware and servers.

Advantages of on-premise ERP:

1) Can be customized and upgraded by company's IT staff in accordance with company's need and preferences in the business conducting way.
2) Strong Security and safety of data transfer.
3) Provide less dependence from vendor.
4) Clearly limited implementation costs.

Cloud-based solutions. Cloud ERP is an enterprise resource management solution that allows companies to access and work with system interfaces. The company has access to the system through the provider and has constant access to it through the Internet.

Advantages of Cloud ERP:

1) Decreasing of beginning costs on equipment, that maintain work.
2) Simplification the process of ERP system implementation.
3) Less costly in comparison with on-premise solutions, because it gives an option to pay subscription fee instead of a big sum for complicated on-premise ERP system.
4) Rapid updates and access to new features and errors fixing from ERP vendor.
5) Provides convenience and ease of accessibility.
6) Easily scales to other branches and divisions of the company, as No manual installation required.

Cloud ERP are based on cloud-computing technologies that has certain list of characteristics such as: agility, cost, multi-tenancy, scalability, and productivity (Kumar Ravi, 2018).

Cloud-computing is the concept (Ali, 2017) according to which programs are launched and output their work to a standard web browser window on a local PC, while all applications and their data necessary for work are located on a remote server on the Internet. Cloud computing computers are called “computing clouds.” In this case, the load between the computers included in the "computing cloud" is automatically distributed.

On the figure 3 the concept of computing cloud is provided:

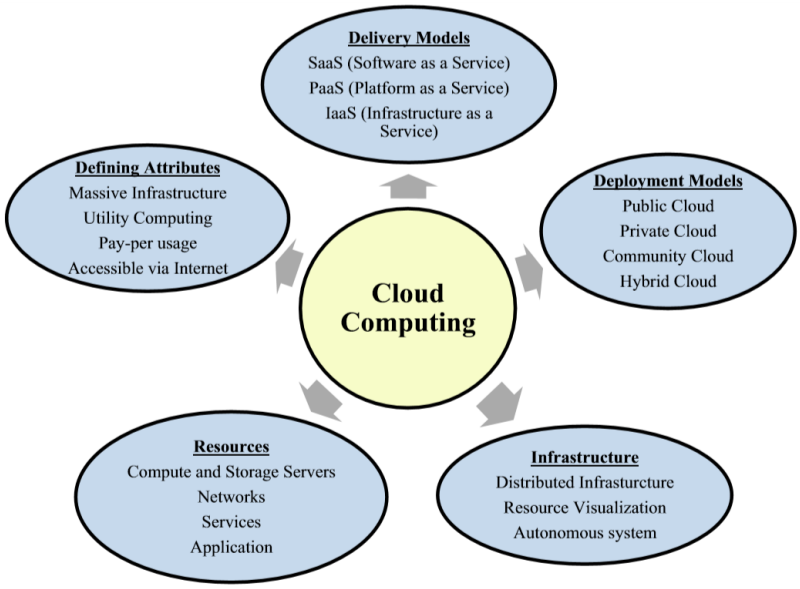


Figure 3 – ERP Cloud computing concept (Ali, 2017)

In addition, there are 4 cloud computing deployment models (Ali, 2017) such as:

1) Private cloud – private cloud (for use in the scale of one organization).
2) Community cloud – public cloud (for use by a specific consumer community).

3) Public cloud – a public cloud (for free use).

4) Hybrid cloud – a hybrid cloud (some combination of different cloud infrastructures).

Thus, which ERP solution to choose depends on company's preferences, needs and specificity of the way of conducting business.

Purposes of ERP systems implementation

ERP system allows collecting all necessary information that allows conduct business in changing environment without huge time consumptions and delays, and this can be formed in the principle of a single database: control, management, accuracy and efficiency (Maditinos, 2011).

To understand this principle, let's imagine the company before and after the implementation of ERP. Suppose the organization has its own production. Most likely, accounting for production is carried out in Excel spreadsheets or in a specialized program. Warehouse accounting works in its own accounting system, accounting - in accounting software. Data transfer from department to department is made in the form of paper documents, and sometimes even verbally and then manually entered into the necessary accounting system.

Such an approach very much depends on the human factor, as a result, the information comes with delays, often significant. Distortions and errors are frequent, and in some cases, some data do not enter the system at all due to human factors, which leads to malfunctions, the need for regular reconciliations, etc. Moreover, any mistake and subsequent correction can lead to significant losses. For example, an error in the code or size when transferring data from the design department to production ends very sadly, since the result is not what was ordered and designed. There are idle times, the cancellation of a marriage or an excess of goods in a warehouse, failure to meet a contract with a client, etc.

In the case of the implementation of the ERP system, a single database is created into which all the information used by different departments is collected. In this case, the percentage of errors is significantly reduced, since the data is entered into the system once by a specialist, and then read automatically by all departments in the required format and encoding (Shi, 2018).

In addition, the data transfer rate when using a single database becomes instantaneous. Those. Immediately after the designers or sales specialists have placed an order in the database, they see it in the design department or in production. Also, the payment mark appears on the order immediately after the accounting department received information from the bank. The number of errors related to the human factor decreases, and those that do occur are eliminated much faster.

Thus, ERP system is necessary for companies for which the speed and accuracy of data transfer between departments is a critical factor of conducting business and competing in the market.

ERP Implementation Process

Implementation of ERP system can be considered as separate project in the company, which require additional budget, time, people and other organizational resources in order to establish compliance all modules and prepare the system and the company's staff to work it.

On the figure 4 the process of implementation ERP (Samaranayake, 2017) is shown and reflects pre-implementation action, implementation tasks and post-implementation. This map clearly shows that implementation process starts with selections method and system, and finally path has activity such as ERP system impact Assessment. Thus, it's important to analyze and measure effect that has ERP system on companies business processes and how ERP influence the firm's performance in the very end.

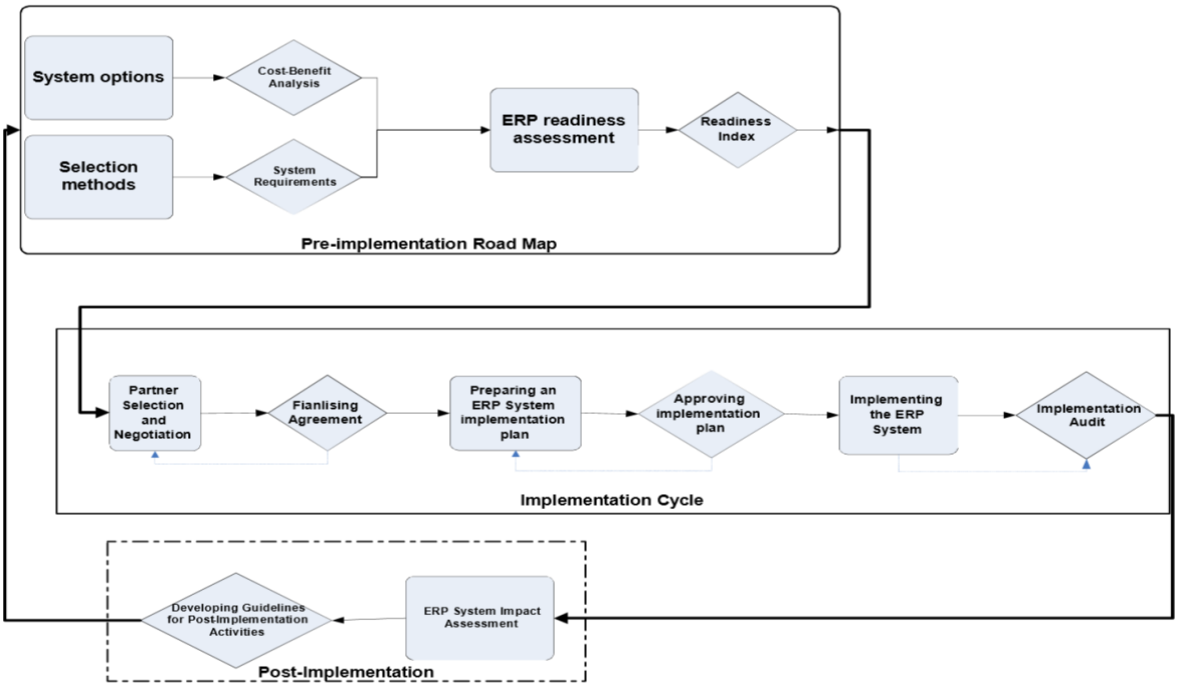


Figure 4 – The process of ERP system implementation (Samaranayake, 2017)

According research paper of Mustafa Ismail (2017) at the stages of planning and preparing for the implementation of the ERP system, organizations should structure the requirements for business processes and the processes of the ERP system to achieve an optimal fit between them.

Due to Poonam and Atul Garg (2014), we can extract factors that effect on implementation ERP system (on example of retail sector, but according to research results, can be scaled to other industries). And the authors' map (figure 5) includes such factors as: Technological, Strategic, People and Project management. Each factor has certain list of sub-factors, that give more information about by what aspects factor influences the ERP implementation.

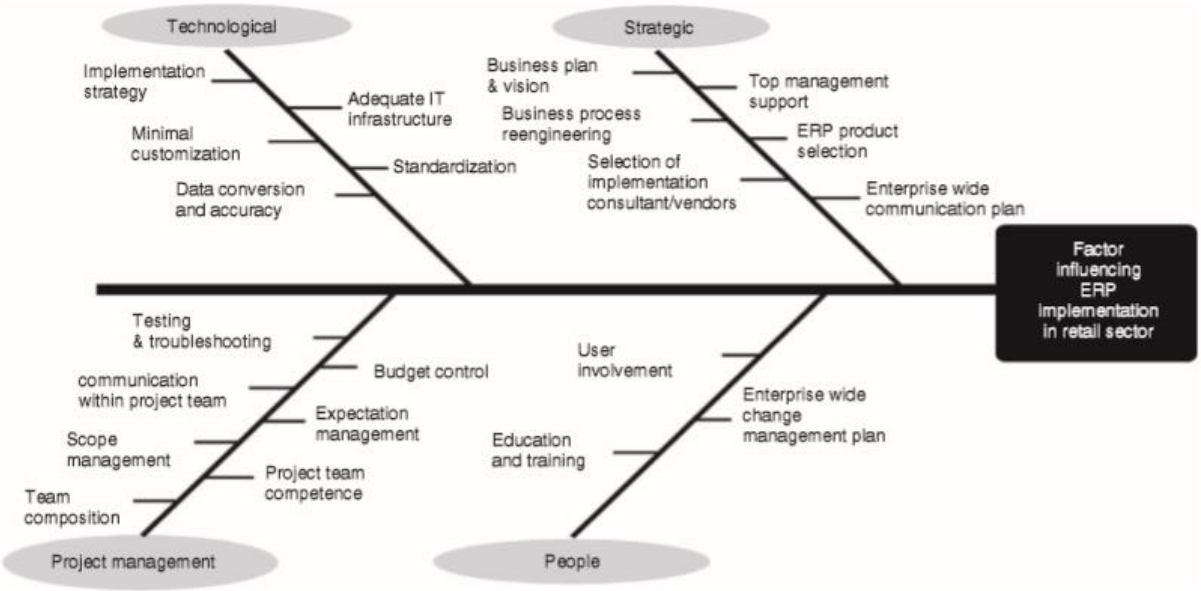


Figure 5 – Factors that influence ERP implementation (Garg, 2014)

Thus, at this point implementation stage and factors that influence are taken into account for further development of the topic.

Trends of ERP systems' development

Nowadays, many companies implement ERP system and relevant technologies in their operations in order to enhance and optimize business-processes, and in order to understand what industries create significant demand, thus, drive IT-companies interests in the development of ERP systems as a complicated product and create solutions for companies. Report of Panorama Consulting Solutions (2018) clearly illustrates the situation in the world market of ERP system users is represented in the picture below (figure 6).

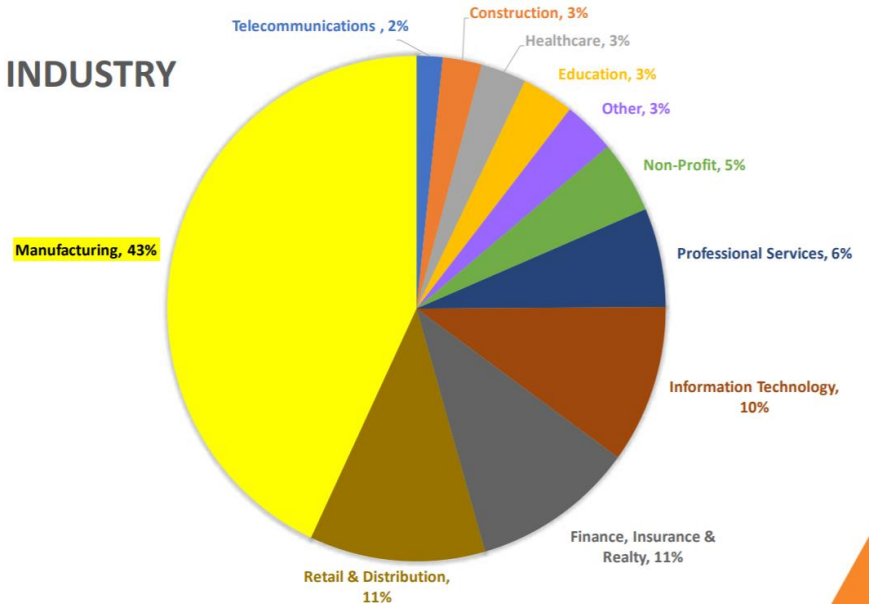


Figure 6 – Percentage of industries that use ERP systems (Panorama, 2018)

If we look at the graph above we can see, that the biggest part of all companies, that implement and use ERP system as a way of conducting their businesses, is Manufacturing Industry with 43% of all companies. Industries of «Retail & Distribution», «Finance, Insurance & Realty», «Information Technology» have close percentage 10-11% and reflect significant share of ERP-using companies.

In order to understand the direction of development of the market, let's have a look a table below (figures 7-8), which is a reflection on question «To what extent are you using / planning to use Cloud Computing today and in the future (in the 3-5 years)?» that Accenture' consultants asked ERP consumer in their survey (Accenture, 2018).

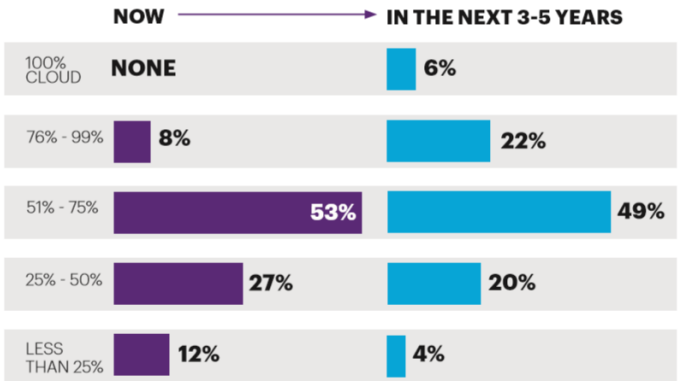
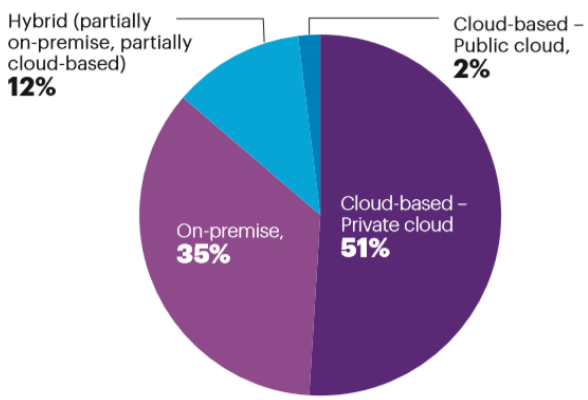


Figure 7 – Companies' intention of using ERP based on cloud technologies (Accenture, 2018)

Thus, from the picture above we can conclude that companies move to the cloud-based solutions, and ERP systems follow this trend.



Picture 8 – Types of used ERP systems (Accenture, 2018)

According to Accenture Report «2019 ERP Trends» (2018), we see that the most of the companies use Private Cloud-based solutions – 51%, total percentage of companies that use cloud-based ERP systems is 53%.Those who use on-premise solutions are only 35%. This diagram reflects current trend of usage cloud-based technologies.

As we can see nowadays companies mostly prefer to use cloud technologies instead of local, what has both advantages and disadvantages, but this sphere of IT solutions actively develop, and every new solution overlaps the older one, proving the newest and more stable way of how to solve certain issue or automate certain process. Thus, trend is cloud technologies, which also includes ERP systems.

ERP systems in Russia

To assess the demand for ERP systems in Russia, according to a study and opinion of TAdvisor experts (2017), it is necessary to consider such a criterion as the number of ERP system implementations. According to the results of the 2017 study, this criterion showed that the most common ERP system implemented in the Russian market is 1C: Enterprise ERP 1C company – 167 implementations in 2017, while reaching 31% of the market share. Next comes the "Галактика" ERP – 3 deployments and a 7.5% market share. The SAP ERP system is in third place, while, according to the study, SAP is the most popular in the world, but its share in the Russian market is 6% and shows an increase of 7 deployments in 2017. At the same time, experts say that Microsoft Dynamics AX and Dynamics NAV ERP systems are strengthening their positions – 13 implementations, 5.8% market share and 3 implementations, 5.2% market share, respectively. Statistics on the number of implementations from 2005 to 2017 and the share of ERP solutions in the Russian market are presented below (figure 9).

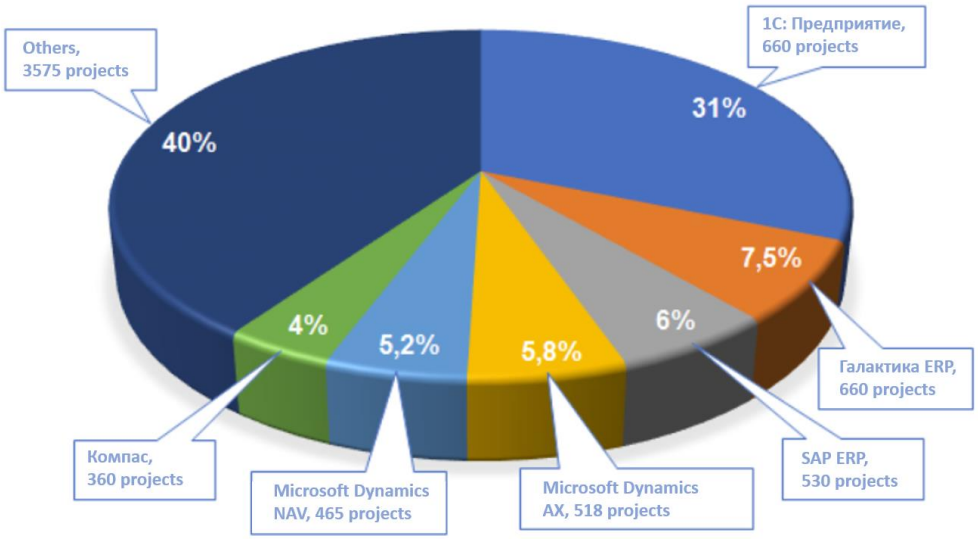


Figure 9 – ERP solutions implementations 2005-2017 and Market shares (TAdviser, 2017)

According to the results of the TAdviser study (2017), for the period 2005-2017, the leader in the number of ERP system implementations in Russia is the Retail industry – 1410 implementations and 15.9% of the market share, followed by the Engineering Industry – 881 implementations and 10% of the market share (table 1). The third largest number of implementations is Construction Industry – 699 implementations and 7.9% of the market share. It is worth noting that a separate segment, which reflects a smaller number of ERP system implementations in other industries, while the number of implementations in these industries does not allow to separate them, shows 3,517 implementations and 39.8% of the market share. At the same time, the Education segment is not reflected separately and is included in the Others category, what also can mean, that in this segment Educational organizations do not actively use ERP systems.

Table 1 – Growth of Additional Education Market in Russia (TAdviser, 2017)

Industry	**Number of implementations**	**% from total**
Retail	1410	15,90%
Machinery Industry	881	10%
Construction Industry	699	7,90%
Food industry	562	6,40%
Chemical industry	322	3,60%
Healthcare	318	3,60%
Financial services	315	3,60%
Energetics	290	3,30%
Transport	272	3,10%
Housing and communal services	260	2,90%
Others	3517	39,80%

According to the TAdviser study (2017), the following trends are observed in the Russian ERP systems market:

- Companies are increasingly making decisions to implement ERP systems of Russian developers as an import substitution, due to political and economic reasons.

- Russian companies are following the global trend and are switching to Cloud ERP systems, which allows companies not to waste time installing and implementing on-premise ERP systems; instead, purchase a subscription and gain access to the ERP system online. Thus, it is worth noting that SMEs see advantages in Cloud ERP systems, as they can access information at any time and make the necessary decisions.

- Integration of ERP systems with smart devices. According to experts of TAdviser (2017), "production is becoming more intelligent, various automated devices generate more information, and the task of the ERP system is to help use this data to make optimal management decisions online."

- There is also an increase in demand for industry-specific ERP systems, which implies that ERP systems focus on unique business processes, standards and regulatory aspects of specific industries. Therefore, the set of ERP modules and functionality in such industry specific solutions are different from generic (all industries) ERP solutions that provide general set for all industries companies (O' Sullivan, 2014).

In addition, going deeper in generic and industry-specific ERP systems, it should be said that, actually, generic ERP systems are design to cover and be implemented in all kinds of business among different industries, being universal solutions with some level of limitations such long and cost customization processes, not all functions of such solutions companies really need finally (O' Sullivan, 2014). In the same time Generic ERPs are widely spread, because offer basic functionality that any company can potentially require and implement as ERP module. Being actual and similar for many companies, the basic functionality of common generic ERP system includes Customer Relationship Management, Sales Management, Warehouse, Accounting, Supply Chain Management, etc. Generic ERP systems are appropriate for implementation when the company does not need any customization of ERP modules.

But many companies in specific industries find difficult and meaningless to implement Generic ERP systems which include a lot of unnecessary functions in each module, that leads to long customization and employee education how to work and what should be used and what should not. For these reasons ERP system vendors develop industry specific ERP systems that based on complete comprehending what the companies in specific industry really need, what they finally use, that leads to increasing the rate of ERP system usage, ease of adoption and tutoring company' staff, reducing time on customization or even eliminate completely the need to customize (O' Sullivan, 2015).

Industry specific ERP is final solution basing on the focusing on certain industry can potentially enhance business processes and effectiveness of the companies operating in such industry.

Developers of ERP systems specialized in Additional Education Market

According to the modern trend, which consists in the fact that ERP systems take into account the specifics of a particular segment or industry, which allows segment companies to cover all necessary business processes with ERP system functionality and it is easier to adapt ERPs for future use, as well as considering how diverse ERP systems and their functionality even without reference to the industry, which in turn is also a factor affecting company performance, since the purpose of the study is to determine the nature of the impact of ERP systems implemented in Additional Education Market , it is necessary to consider ERP systems that focus on this market segment, which will allow to study in more detail the functionality of such ERP systems and facilitate the search for data for research and access to them, i.e. schools of additional education, users of data ERP systems. Therefore to determine ERP systems that provide solutions for Education Market or precisely for Additional Education Market, it's reasonable to analyze currently existing ERP systems in Russia (Table 2).

Table 2 – Analysis of ERP systems in Russia (TAdviser 2017; Developers' websites, 2020)

ERP system	Company Developer	Industry	Focusing on Additional Education Market
1C: General educational institution	1C	Additional Education	+
Галактика ERP	Galaktika	Multi industry	-
SAP ERP	SAP	Multi industry	-
Microsoft Dynamics AX	Microsoft	Multi industry	-
Microsoft Dynamics NAV (365)	Microsoft	Multi industry	-
Компас ERP	Compas	Multi industry	-
Борлас ERP	Borlas	Multi industry	-
Education ERP	Liga Sporta	Additional Education	+
Oracle ERP	Oracle	Multi industry	-
Croc ERP	Croc	Multi industry	-

As a result of analysis the solutions that are presented on the ERP systems market in the Russian market, including market leaders (TAdviser, 2017), we can distinguish two developers whose solutions are specialized for the specifics of the additional education market: "1C: General

educational institution" (for additional education) by 1C company and the Education ERP of Liga Sporta.

Thus, in this part of the study, ERP systems that are currently being implemented and used by SMEs and LEs in Russia were analyzed, in particular: "1C: General Education" (1C, 2020), "Galaxy ERP" (Galaktika, 2020) , "SAP ERP" (SAP, 2020), "Microsoft Dynamics AX" (Microsoft Dynamics, 2020), "Microsoft Dynamics NAV" (Microsoft 365, 2020); "Borlas ERP" (Borlas, 2020), "Education ERP" (Education ERP, 2020), "Oracle ERP" (Oracle, 2020), "Croc ERP" (Croc, 2020).

1.3 Market of Additional education in Russia

Currently, in a market economy, the educational institution, which ensures the reproduction of the intellectual and cultural development of society, plays the role of an educational service, while acquiring the form of a product having consumer value, price and becoming an object of marketing. Moreover, the concept of free public education is losing confidence among parents, in terms of sufficiency, which leads to the development of private commercial centers, schools and clubs for children development (HSE, 2016). The number of such organizations is growing every year, which is associated with a gradually increasing number of children, the leveling demographic situation in Russia and government support. At the same time, the industry of additional education in Russia (HSE, 2016; DRG, 2017), on the one hand, is not well balanced, and on the other hand, highly competitive in most educational programs and educational product offerings: for example, many courses may have the same names, but have completely different content and scope of programs calculated for several hours of training, weeks or months.

According to the Discovery Research Group (DRG, 2017) study, continuing education organizations differ in the thematic areas in which they specialize and implement in their educational programs, and the following can be attributed to the main ones:

- Intellectual development: the development of emotional intelligence, chemistry, entertaining physics, robotics, chess, speed reading, mental arithmetic, etc.
- Learning foreign languages: English, French, German, Chinese, etc.
- Physical education: football, swimming, wrestling, dance, fitness, etc.
- Career guidance: the choice of a profession and a basic study of its main aspects.
- Creative development: musical development (vocals, playing the instruments), art and visual arts, theater and acting.
- Pre-school and pre-university training: additional pre-school and school education based on the school curriculum.

Speaking about the growth and development of the additional education market it should be said about the market volume and its dynamics. The volume of the market for educational and development services in 2017 amounted to 853 billion rubles according to the research results of DRG. At the same time, the share of pre-school and additional children's education was 54%, or about 461 billion rubles, while the segment of additional school education and development services amounted to the remaining 46%, or 392 billion rubles (figure 10), and, moreover, in the coming years, the market will continue to gradually grow by an average of 2-3% per year (DRG 2017; Netology, EdTech 2017) and will reach 942 billion rubles in 2021 (table 3). The volume estimation of education market by DRG differs from the market volumes determined in the Netology study (EdTech 2017) (130 billion rubles in 2017), since DRG included private schools of additional education in all areas, including sports, art, in its calculations, thus presented the full a picture of the continuing education market, while Netology focused on supplementary school education, based only on the supplementary services of the school curriculum.

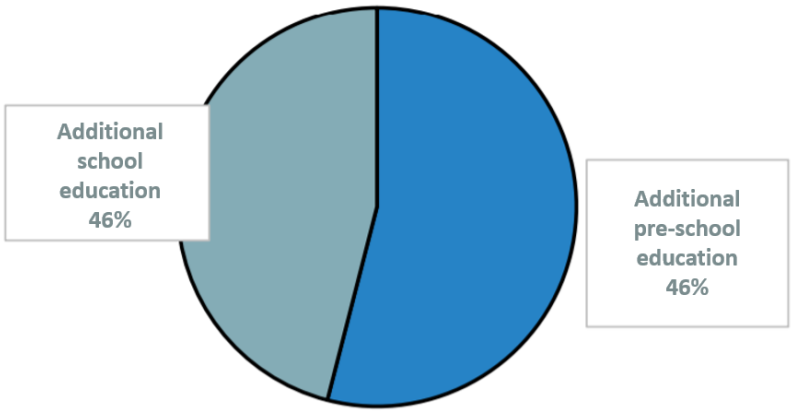


Figure 10 – Shares of Additional Pre-school and School Education (DRG, 2017)

Thus, the market volume of additional education market in Russia (DRG, 2017) is presented in the table below:

Table 3 – Volume Dynamics of Additional Education Market in Russia (DRG, 2017)

	Add pre-school edu, bln	**Add school edu, bln**	**Total, bln**
2017	461	392	853
2019	484	412	896
2021	508	433	942

At the same time, according to the DRG study (2017), the costs of parents for additional education of children do not exceed 30,000 rubles per year, and the average value per child is 22,660 rubles per year. However, it is worth noting that the value may depend on the population of the city and the average cost of services. It is also worth noting that the average monthly check for additional education for children now is about 1.5-3.6 thousand rubles. in the country with an average intensity of classes of five to six months a year (DRG, 2017).

In 2017, there are more than 12 thousand institutions in Russia (DRG, 2017) that provide additional educational and development services for children, and their number is constantly growing. It is worth noting that it's difficult to calculate the exact number of organizations of additional education, and the difficulty is that not all educational organizations and schools receive an official license and at the same time operate on the basis of kindergartens, schools and other government institutions, therefore DRG specialists did not take into account shadow services in these calculations. According to "2GIS", only in St. Petersburg there are more than 3.3 thousand centers for the development of children, sports sections and children's language courses (DP, 2018). According to expert forecasts, over time, a certain correction will occur in the market of paid educational services: although new centers will continue to open further, however, small and unlicensed players will gradually leave the site, unable to withstand the competition with stronger and more qualified competitors. Below is the growth dynamics of the number of registered supplementary education organizations in Russia according to research of HSE (2016) and ROSSTAT (2016) (figure 11).

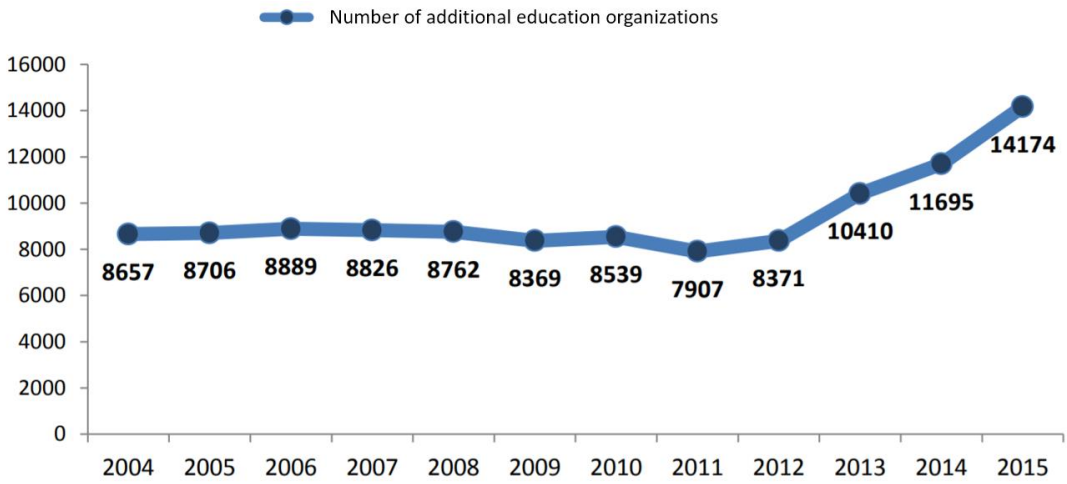


Figure 11 – The dynamics of the number of Additional education organizations during 2004-2015, ROSSTAT (2016), HSE (2016)

Moreover, according to the DRG study (2017), taking into account that the number of additional education organizations at more than 12 thousands in Russia the largest share of

continuing education organizations is made up of Children's centers – 67.6%, then Children's Schools – 14.8%, Tutoring – 9%, Children's Clubs – 7.2% (figure 12).

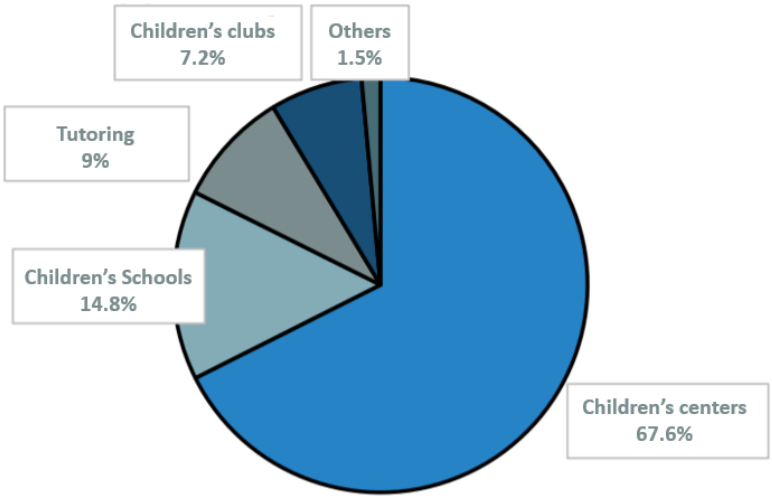


Figure 12 – Market Shares of additional education organizations' types (DRG, 2017)

And according to the DRG study (2017), the shares of organizations in the areas of educational products and programs are as follows: Early development – 35%, Creative development – 22%, Intellectual development – 16%, Learning foreign languages – 12%, Others educational programs – 15% (figure 13).

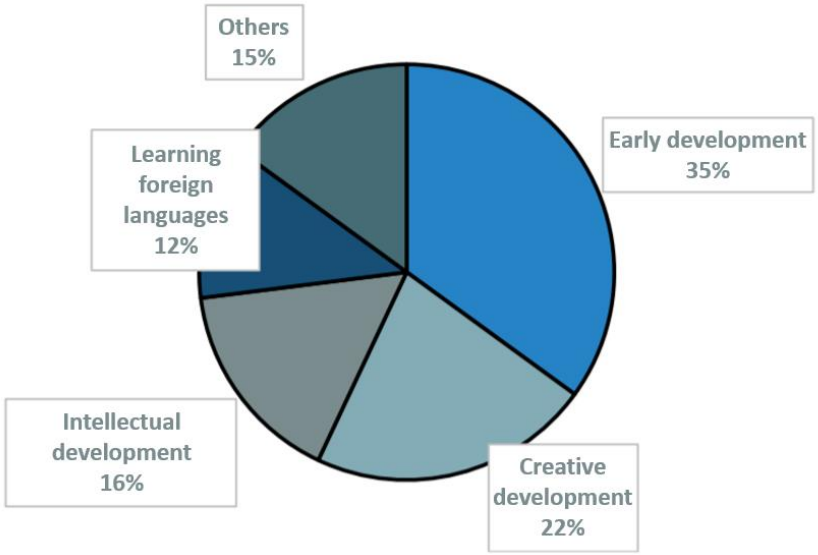


Figure 13 – Market Shares of additional education products (DRG, 2017)

Speaking about the number of the audience of the market for additional children's education, according to the Netology Group (EdTech, 2017), the audience of the segment totals about 4.8 million

children aged 0 to 6 years. At the same time, 2.6 million are engaged in continuing education programs in kindergartens. According to the forecasts of Netology Group experts (EdTech, 2017), an active audience of additional preschool children's education (those who get involved in continuing education programs) will reach 5.5 million people in 2021. According to DRG research (2017), in 2017, approximately 54% of children attend additional developmental and educational classes provided by additional education organizations, in addition to kindergartens and schools.

According to the data obtained in the study of Netology Group (EdTech, 2017), the active audience of the additional education segment among students in grades 5-11 is about 6 million, which is 40% in relation to the number of students in this age group. According to experts predicted by EdTech (2017), the number of students in this age group who receive additional education in institutions of additional education will grow to the level of 6.9 million in 2021. It is worth noting that the proportion of students enrolled in continuing education programs will not change, but due to the favorable dynamics in the development of the demographic situation, only the audience will grow and at the same time significantly (EdTech, 2017). The figure below shows a graph of the dynamics of growth of the audience of grades 5-11.

At the same time, the audience of students in grades 5–11 is approximately 6 million (EdTech, 2017), or 40% of the total number of students in the corresponding age group. According to EdTech experts, the number of schoolchildren receiving additional education will continue to grow and already in 2021 will approach the level of 6.9 million people. The proportion of students enrolled in continuing education programs will not change, but the audience will grow significantly due to the favorable dynamics of the demographic situation (figure 14).

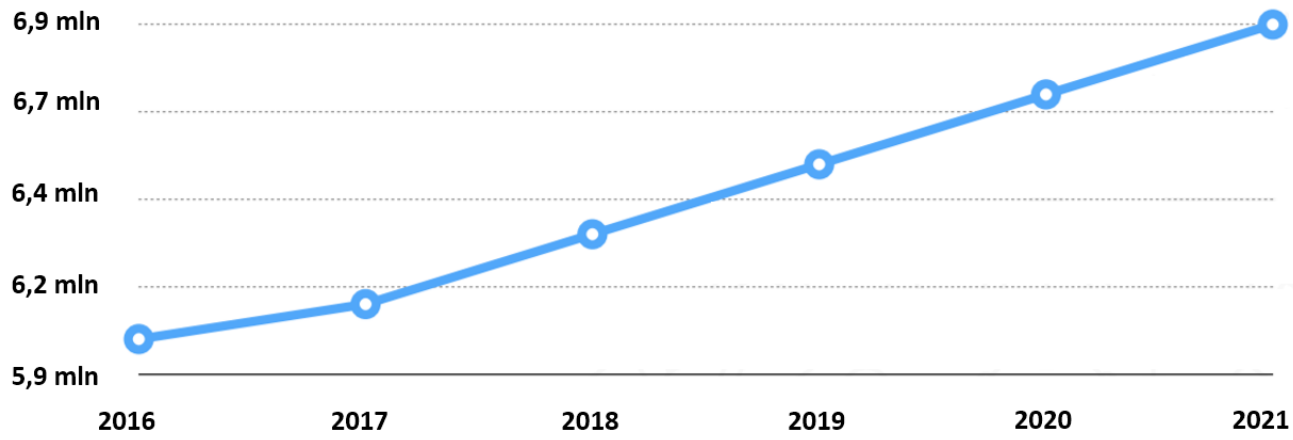


Figure 14 – The dynamics of the additional education active audience of 5-11 grades (EdTech, 2017)

According to DRG (2017), franchising is popular among continuing education organizations that focus on the physical development, development of children's intellectual and creative abilities. According to the results of the DRG study, already in 2017 in Russia the number of franchises amounted to more than 80, with 90% of them created in Russia, while some franchises have a very wide geographic distribution, including the CIS countries and neighboring countries.

And in the same time, given that in Russia, most SMEs are interested in tools to increase business efficiency and strengthen their competitive advantage, but are not always ready to use them (Research of Mail Group, Skolkovo, Bank "Открытие", 2019), for various reasons such as limited resources, difficult to implement, expensive (Ruivo, 2013), it can be stated that the implementation and use of ERP systems as a tool to enhance Company Performance is important to investigate for the further providing the deeper understanding the value of ERP system usage (Ruivo, 2013) for SMEs operating in Additional Education Market.

1.4 Definition of Company performance

To examine the impact of ERP systems on Company performance of SMEs operating in additional education market, it is necessary to determine what Company performance implies. In their works, the authors (Shilke, 2010; Stern et al., 1998; Lebas M., 1995), who tried to define company performance, came to the conclusion that it is impossible to give an absolute and universal definition, since The reality of Company performance can be interpreted differently depending on the specifics of the company, its goals, industry, and the definition changes over time, and often depends on the author and his specific research. Since this study focuses on the study of companies operating in the continuing education market, it is necessary to formulate a definition of company performance applicable to this segment.

The activities of the company, educational organizations and schools of further education is the provision and implementation of educational services, which is a service product. And to determine what aspects of company performance should be taken into account in order to study the impact of the ERP system, it is necessary to turn to the literature, during the analysis of which it was found that aspects of company performance of companies providing services, including educational, should be considered customer satisfaction, increasing in revenue , growth of reputation and market share (McQuerrey, 2018), and the same principle was confirmed by Vorhies and Morgan (2005) as well as Schilke et al (2010), in which Company Performance was defined as three-dimensional phenomena.

Thus, according to the aforementioned authors, the role of financial performance is Profitability, the role of non-financial performance is success of customer orientation expressing customer satisfaction, and the third criterion, which can be used to determine whether a company is achieving market-based goals, is Market Effectiveness. Therefore, such a multidimensional structure will allow us to study the impact of ERP systems on Company performance from the different prospective in details. Such an approach was also used by Dvir (1993), Venkatraman (1989), Bhargava (1994) and Katsikeas (2000).

1.5 ERP impact on company performance

Nowadays there is a sufficient amount of researches on the impact of ERP systems on Company Performance, ERP value, which are based on various research methods – case studies and interviews, analysis of companies' annual reports and comparisons, statistical studies based on operational models and surveys. These works showed that the nature of the influence of ERP systems on Company Performance can be different, and therefore some works argue that ERP systems really have a positive effect on company performance, other works cannot agree with this, citing arguments based on the results of their research, which speak that there is no positive effect, or it is minimal. Therefore, it can be argued that there is no clear answer, statistically sound, universal and absolute.

Based on an analysis of the literature on previous literature review studies that analyzed ERP impact researches that were made in the period of 1999-2016, and adopting with the newest papers of 2016-2020, the following table was formed (table 4), which reflects on which dimension of company performance the research used and focused on(financial performance, non-financial performance, multi-dimensional performance – both financial and non-financial), including also the results of a study of the impact of ERP on performance (positive ERP impact, not significant impact what means no impact, and negative ERP impact), the analysis of the industries that were included in the studies of each work and company size (SMEs or LEs) in authors' samples. In total, 52 works were analyzed, with the number of studies focused on financial performance – 19 articles, non-financial performance – 24 articles, and multi-dimensional performance – 9 articles.

Table 4 – Analysis of ERP impact academic papers (Haddara, 2011; Mangin, 2015; Elmonem, 2016)

Papers	Industry	Financial performance	Non-financial performance	Multi-dimensional performance	Companies Size
Hitt & al., 2002; Hunton & al., 2003; Nicolaou A, 2004; Matolcsy & al., 2005; S. Aral & al., 2005; Nicolaou & Bhattacharya, 2006; B. Dehning & al., 2007; Romero & al., 2010; H. Ince et al. 2013; L. Handoko, 2015.	Multi industry Multi industry Multi industry Multi industry Multi industry Multi industry Manufacturing Oil and Gas Multi Industry Multi Industry	**Positive**	Not researched	Not researched	LEs
Poston & Grabski, 2001; O. Velcu, 2005; Hendricks & al., 2007; M. Anderson & al., 2011.	Textile Multi industry Multi industry Multi industry	**Not significant**	Not researched	Not researched	LEs
Liu & al., 2008.	Chemical	**Negative**	Not researched	Not researched	LEs
I. Saini, 2014; B. Aslan, 2015.	Manufacturing Multi industry	**Positive**	Not researched	Not researched	SMEs
Bohorquez V. & Esteves J., 2008.	Multi industry	**Negative**	Not researched	Not researched	SMEs
Shin I., 2006.	Multi industry	**Not significant**	Not researched	Not researched	SMEs
Fryer , 1999; Thomas H. Davenport, 2000; A. Mc Afee, 2002; J. Olhager, E. Selldin, 2003; Y. Yusuf & al., 2004; Li-Ling Hsu & Minder Chen, 2004; Gattiker & Goodhue, 2005; Law & Ngai, 2007; Kang, Park, Yang, 2008; Yan Zhu & al., 2010 Zabukovsek et al., 2018	Multi industry Multi industry Multi industry Manufacturing Manufacturing Multi industry Manufacturing Multi industry Multi industry Retail Multi industry	Not researched	**Positive**	Not researched	LEs
J. Ross, 1999; Markus & al., 2000; A. Jalal, 2011.	Multi industry Multi industry Multi industry	Not researched	**Not significant**	Not researched	LEs
Hawking & al., 2004	Multi industry	Not researched	**Negative**	Not researched	LEs
M. Marsch, 2000; T. Federici, 2009; O. Zach, 2011; P. Ruivo & al., 2012; B. Johansson & al., 2012; I. De Loo & al., 2013; Pedro Ruivo & al., 2014.	Multi industry Multi industry Multi industry Multi industry Multi industry Multi industry Multi industry	Not researched	**Positive**	Not researched	SMEs

Papers	Industry	Financial performance	Non-financial performance	Multi-dimensional performance	Companies Size
B. Snider & al., 2009; Haddara & Paivarinta, 2011;	Multi industry Multi industry	Not researched	**Not significant**	Not researched	SMEs
Kallunki & al., 2008; Kallunki & Laitinen K., 2010; Y.-f. Su, C. Yang, 2010 Galy E. & Sauceda M.J., 2014; M.F. Acar et al., 2017; Gupta et al., 2018; P. Ruivo & al., 2020;	Multi industry Multi industry Multi industry Multi industry Manufacturing Multi industry Multi industry	Included	Included	**Positive**	LEs
Tsai M-T. & al., 2011	Multi industry	Included	Included	**Not significant**	LEs
Wieder & al., 2006	Multi industry	Included	Included	**Negative**	LEs

As can be seen from the table above, most of the works study the impact of ERP systems among companies operating in different industries, while being LEs companies – out of 52 studies analyzed, 42 work research ERP Impact among companies of Multi Industry and 40 works research the impact ERP on LEs. There is also a series of studies that focus on individual industries, such as Manufacturing (7 papers), Retail (1 paper), Chemical (1 paper), Oil and Gas (1 paper) and Textile (1 paper).

Based on the data obtained from the literature review, it can be concluded that ERP systems positive impact was proved from different prospective: separately positive impact on financial performance (Hitt, 2002; Nicolaou, 2006; Romero, 2010; Handoko, 2015), separately impact on non-financial performance and positive impact on LEs company performance, including both financial and non-financial performance. Considering the works exploring the impact of ERP systems on SMEs, operating in different industries, it is worth noting that Bohorquez (2008) and Shin (2006) did not define positive impact on financial, but in Saini (2014) and Aslan (2015), Based on the analysis of financial performance of SMEs, results are obtained that confirm the positive impact of the ERP system on financial performance of SMEs, but non-financial performance is not taken into account. It is worth noting that there are a number of works (Marsh, 2000; Federichi, 2009; Ruivo, 2012; Johansson 2012; Ruivo, 2014), which study the nature of the impact of ERP systems on SMEs non-financial performance and confirm the positive impact of ERP systems on non-financial performance, but they do not include studies of the impact on financial performance. However, there are no works focusing on SMEs, and which, as a result of the study, received a negative effect from the use of ERP

systems by companies, but 2 papers stated not significant effect on non-financial performance of SMEs.

Studies that include both types of company performance such as financial and non-financial - multidimensional, were conducted only among LEs, and the works of Kallunki (2008, 2010), Y. Su (2010), Acar (2017), Gupta (2018), Ruivo (2020) confirmed the positive impact of the ERP system on LEs company performance, positively effecting financial and non-financial performance of the companies. At the same time, Tsai (2011) during the study determined the nature of the impact of ERP systems as not significant, without highlighting the significant relationship between the use of ERP systems and the final positive impact on company performance. Meanwhile, Wieder (2006), while investigating the influence of an ERP system, received negative results of the nature of influence. And it should be noted that previous studies involving multi-dimensional performance were not conducted on a sample of SMEs.

Stefanou (2011) argues that ERP actually has a wide influence on Firm performance, based on the findings of a study of the impact on financial performance, which is considered insufficient justification to argue that ERP is indeed a tool that can increase company performance. To do this, he, like many authors who use multi-dimensional performance analysis (Ruivo, 2020; Gupta, 2018; Acar, 2017; Galy, 2014), suggests using non-financial performance indicators, such as market effectiveness, customer satisfaction and etc., to see the impact of ERP systems widely. According to Galy (2014), Gupta (2018), Ruivo (2020), LEs get a greater impact from the implementation of ERP systems than SMEs, the positive impact on which is often very weak and is achieved in 3-5 years on average, when LEs achieve a positive effect, since they have more resources for ERP adaptation, staff training, detailed customization.

According to Mangin (2015) LEs, implementing and using ERP systems, have more positive outcomes in terms of company performance and growth of effectiveness, and it's more evident monitoring in long-term. And according to Mangin (2015), benefits and positive impact on company performance for SMEs should be demonstrated, therefore it's reasonable to investigate the ERP impact on SMEs performance separately from LEs. The study of Mangin (2015), as well as other authors in the table above, demonstrates the lack of positive impact on company performance.

Haddara (2011) in his paper stated that ERP impact on SMEs is different from LEs (by company size) and also different among industries. Thus, to bring the evidence of the ERP impact for specific market, the study should take into account only SMEs ERP-users cases of this market.

Since this study focuses on the education market, in particular, on the additional education market, since the education market is quite segmented and the segments can differ greatly from each other in terms of audience, business model, and business tools, it's worth saying that at the moment there are no studies, studying the nature of the impact of ERP systems on educational organizations

SMEs, operating in Education market or Additional Education market, at the same time there are no studies among SMEs that take into account the impact of ERP systems on company performance, basing on both financial performance and non-financial performance.

ERP impact on company performance Frameworks

To study the impact of ERP systems on company performance, a lot of authors used the Framework, which is based on the implemented modules (modules-based framework) of ERP systems and claims that this method allows to determine the value of the module used by the company, thus checking the effectiveness of this module for a specific market and how much the module meets the needs of companies using this set modules (S. Parthasarathy, 2016)

In another work, exploring the impact of ERP system modules directly and indirectly on company performance (Stensrud and Myrtveit, 2008) the framework of ERP impact analysis is also based on modules implemented what help to understand the efficiency of specific set of the modules. The framework of ERP impact analysis that based ERPS package choice, module choice and package customization is suggested for the effective way how to examine the value of each module on company performance and how specific package and customization can finally affect the effectiveness of the company in the market (Buleje, 2014; A. Madapusi, 2012; Kallunki, 2010; Hitt et al., 2002).

Taking into account the uniqueness of implemented ERP modules and each segment specifics that influence on the choice of the modules for certain company or market, abovementioned authors suggest to use Modules-based framework in order to investigate the impact of unique set of modules.

The research of Katerattanakul (2019), where authors investigated the impact of ERP system on company performance using cluster analysis in order to find out companies that operate in manufacturing industry and have similar characteristics and then analyze what characteristics have influence on the way of companies' grouping. This research shows that ERP implementation has no significant effect on business outcomes rather depending on two factors, one of them is size of the company.

In the research of Acar (2017), method of structural equation modeling was applied to investigate the nature of ERP impact on company performance and had the following results: supply chain orientation positively influence operational performance, while ERP has no significant effect, and this aspect was named as «Productivity paradox of IT».

A study by Juha-Pekka Kallunki (2010) examines the impact of ERP implementation and use on company performance indicators such as Non-financial performance and Financial Performance. This approach allows to determine the direct and indirect effect of the ERPS factor, which means the

use of modules and functions of the ERP system (CRM, SCM, HRM, Budgeting and planning and others), but without going into details and making each module a separate factor.

It is worth paying attention to latent constructs Non-financial performance and Financial performance, so in this paper the effect of ERPS on Firm Performance is expressed (figure 15). Also, if we examine in more detail each aspect of Firm Performance, we have the following variables, which are included as Non-financial performance: Employee satisfaction, Workplace relations, Manufacturing lead time, Number of customers complains, Customer retention and others – all 22 variables that are measured as a evaluation the company performance comparing with industry average. And as Financial performance variables this model uses the following: Operating Income, Sales growth rate, Return on investment. Thus, this study shows how Firm Performance can be represented, which allows to analyze the impact of an ERP system on company performance in more detail.

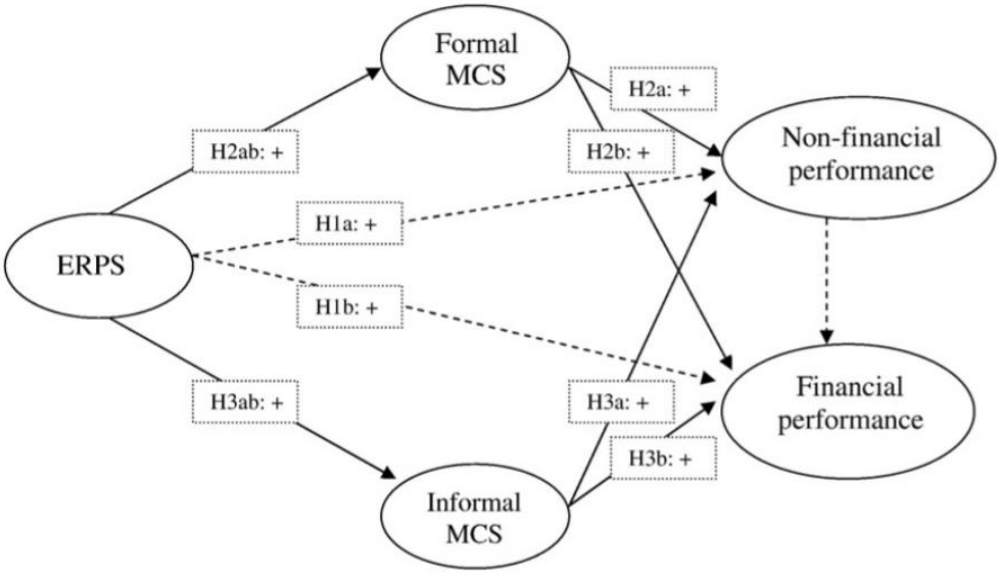


Figure 15 – ERP Impact on Management Control Systems and Firm Performance (Kallunki, 2010)

Huseyin Ince (2013) examines the relationship between implementation and use of an ERP system (System and Information Quality, System Use, Individual Impact , Organizational Impact), which refers not to the functional features or modules of an ERP system (figure 16), but to the quality of the system itself, the ease of use, and at the same time SCM Practices, which include Customer Relationship, Strategic Partnership with Suppliers, Level of Information Sharing and Quality and what's more this model shows how ERP System and SCM Practices factors influence the Competitive Advantage of the company and Firm Performance.

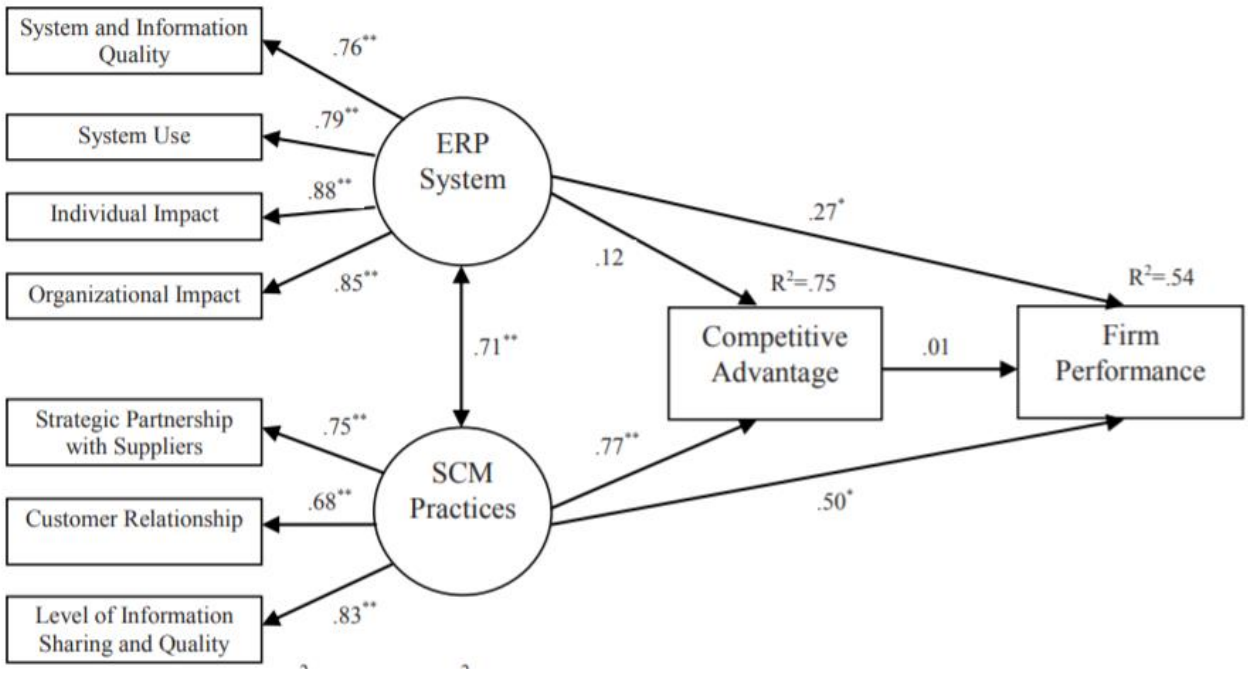


Figure 16 – ERP and SCM practices impact on Firm Performance (Ince, 2013)

Thus, the researcher confirmed in their work the influence of the ERP system on SCM Practices, which includes the Supply Chain Management and Customer Relationship, at the same time they established a direct positive effect of these factors on the Competitive Advantage and Firm Performance. According to this paper, Factor of Competitive Advantage also plays important role for the analysis of ERP systems' effect on Firm Performance, so it's taken into consideration for further development in this paper.

Another model that explores the impact of an ERP system on Supply Chain Management, which Yi-fen Su and Chyan Yang (2015), is shown in the figure below (Figure 17) and which includes analysis of ERP Benefits such as Operational Benefits, Business Process and Management Benefits and Strategic IT Planning Benefits and explores their direct impact on Operational Process Integration, Customer & Relationship Integration, Planning and Control Process Integration. The authors in their work do not focus on Firm Performance, but show how the factors that appear with the introduction of ERP systems affect individually the company's SCM competence, and at the same time it is a functional module of ERP. The work shows an alternative way to test the impact of using the ERP system on the managerial aspects of the company.

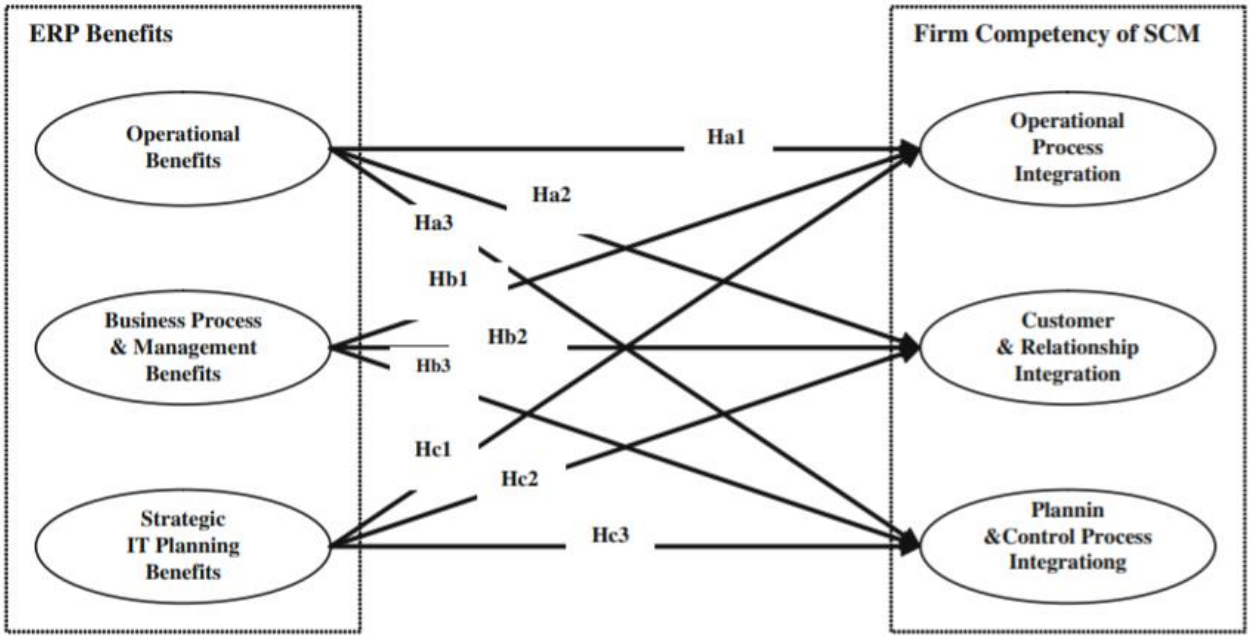


Figure 17 – Model of ERP Impact on SCM (Yi-fen Su, 2015)

Another example of ERP usage influence on Performance that investigated in the work of Bulut Aslan (2017) This work focuses on the effect of Decision Support on Use of ERP and effect of both Decision Support and Use of ERP on Performance (figure 18). This model examines the impact of such ERP system functionality as Customer Inquiry Management, Available-to-Promise, Capable-to-Promise, Product Lifecycle Management, Material Requirements Planning, Advanced Planning and Scheduling systems, Supply Chain Management and Customer Relationship Management.

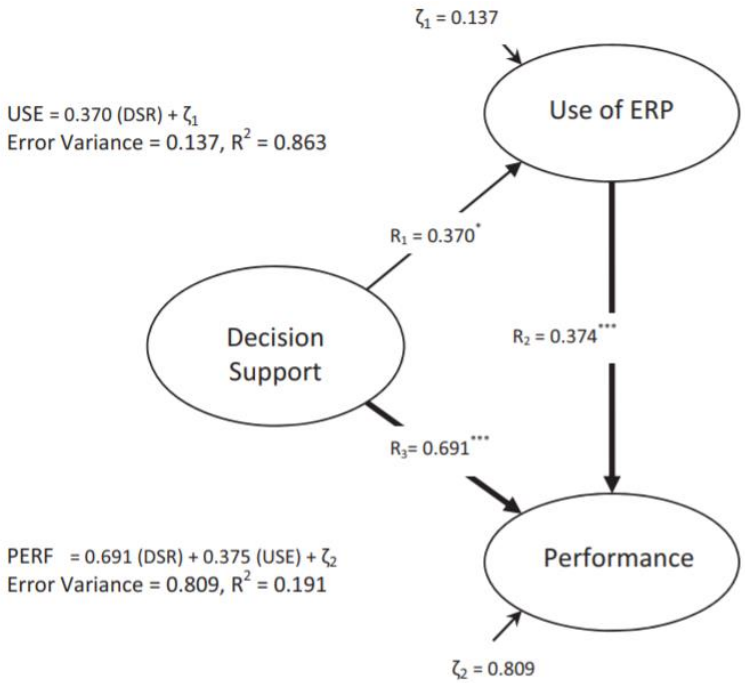


Figure 18 – Decision Support Effect on Performance (Bulut Aslan, 2017)

According to study of Zabukovsek (2019), where the influence of factors reflecting the quality of work and the capabilities of an ERP system on ERP Work Compatibility, ERP Usefulness, ERP Ease of Use, connecting with Attitude to ERP system and Extended Use (figure 19) Is investigated. This work explores and reveals in detail what aspects related to the ERP system affect how often users use ERP and how fully and adequately use the ERP functionality.

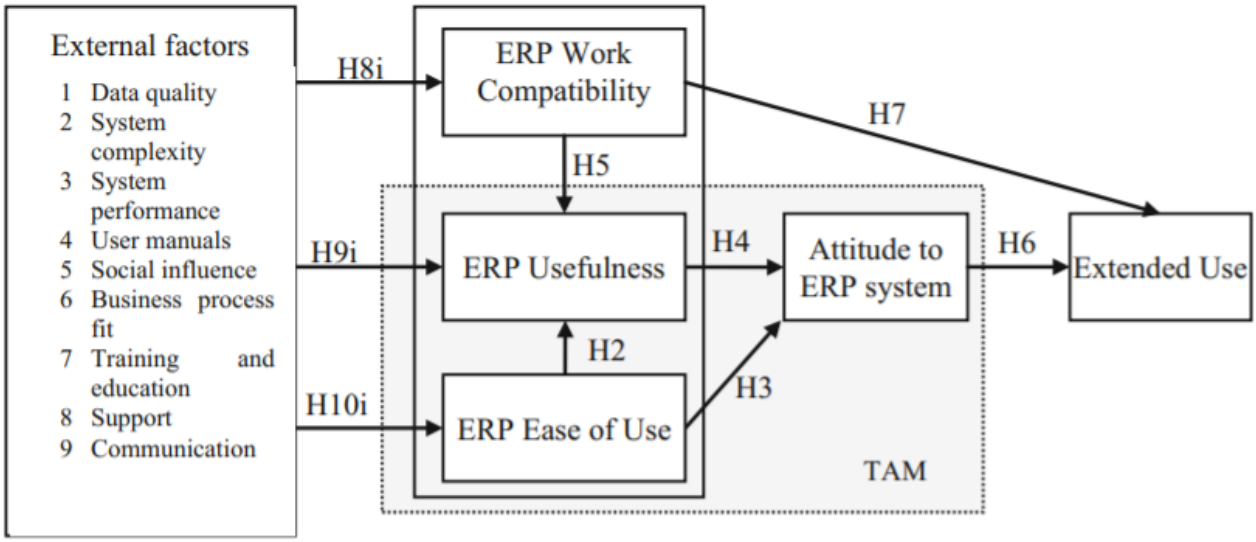


Figure 19 – ERP Extended Use Model (Zabukovsek, 2019)

In the paper of Gupta (2018), the author investigated the impact of Cloud ERP systems on company performance among LEs, sample companies included representatives from various industries such as Shipping companies, 3 PL companies, Trucking companies and Project logistic companies, and uses a model where the Cloud ERP factor reflects the functionality and modularity of the ERP system, while considering Performance Chain Performance, Organizational Performance as factors of Performance, which in turn included Financial Performance and Marketing Performance (figure 20). The moderator of Supply Base Complexity was the moderator in this model. As a result of the study, the author established, using the PLS-SEM data analysis method, that the Cloud ERP system does not have a positive impact on Financial Performance, but it also has a positive effect on Supply Chain Performance and Marketing Performance.

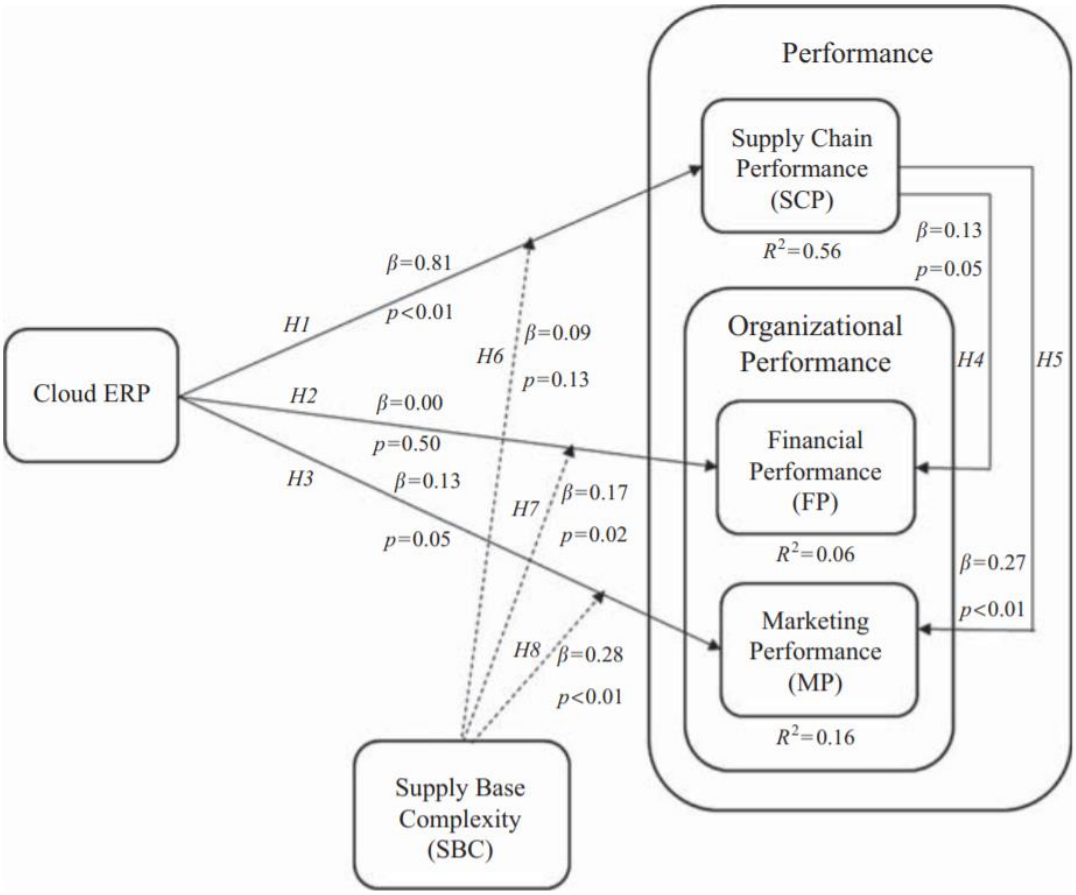


Figure 20 – Cloud ERP impact (Gupta, 2018)

In the following paper, Galy (2014) examines the impact of an ERP system in terms of Technological Competence, Relationship with Outside Experts, Top Management's knowledge of project success, Top Management's Emotional support, Long-range Plans, Sharing of information between departments and their influence on company performance which was represented by such factors as Net Sales, Net income before extraordinary items, Earnings before interest and taxes, Return on Assets, Return on Investment, thus, the author focuses on financial performance of the company and ERP impact on it (figure 21). The study was conducted among LEs, which are representatives of various industries. To study the impact, a regression analysis method was used, the results of which confirmed the generally positive impact of using the ERP system on financial performance, while one hypothesis that was the positive impact of Knowledge of the strategic emphasis on financial performance ratios was not confirmed.

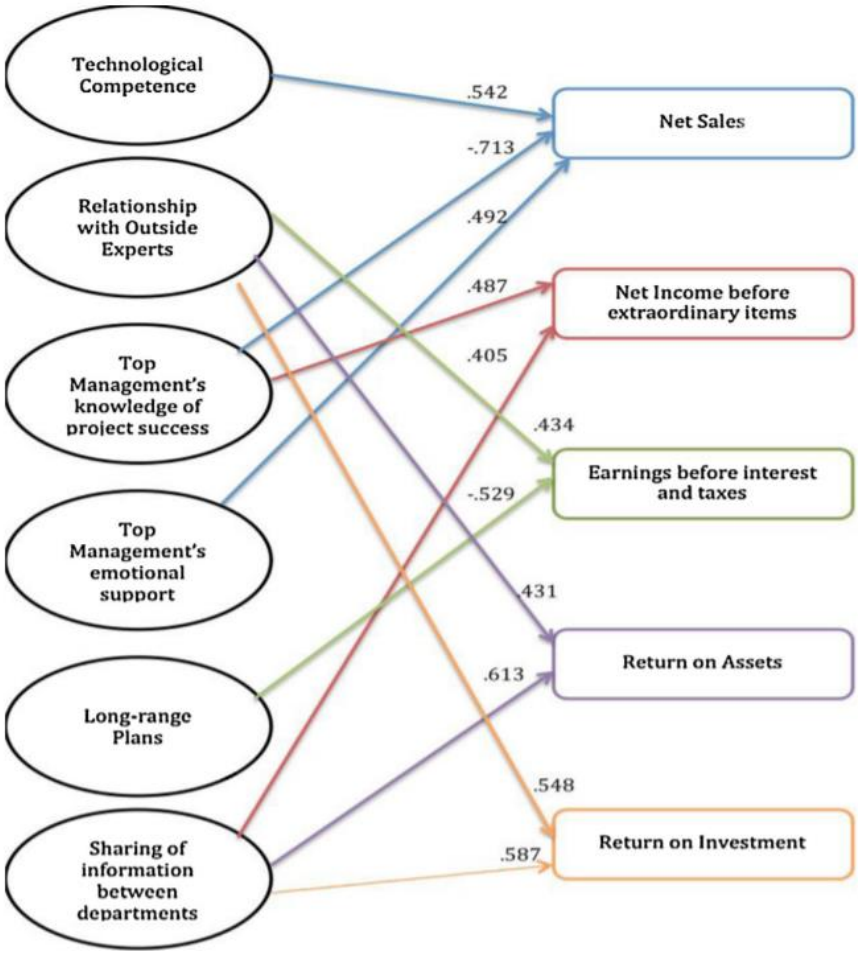


Figure 21 – ERP impact on financial performance (Guly, 2014)

Buleje (2014) in his work also investigated the influence of ERP systems among representatives of SMEs, and for this he used the model shown in figure 22. This model includes 2 independent variables: ERP Adoption (binary variable, moderator) and ERP Modules, which includes modules of ERP systems, and as a company performance factors, the author used Performance Ratios, Productivity Regression, Stock Market Valuation (figure 22). The study was conducted among representatives of various industries such as Photographic Equip and Supply, Electric Services, Goods Stores, Computer and Software Wholesale, Motors and Generators and others. So, the author's sample was rather diversified. To investigate the nature of relationship between ERP usage and constructs of company performance, the author used regression analysis and as a results of this research the author found out that there is no positive impact proved significantly proved by regression analysis that ERP system among SMEs representatives positively impacts on Company Performance from the perspective of Performance Ratios (ROA, ROE and etc), Stock Market Valuation which both are financial dimensions and Productivity Regression as non-financial performance dimension.

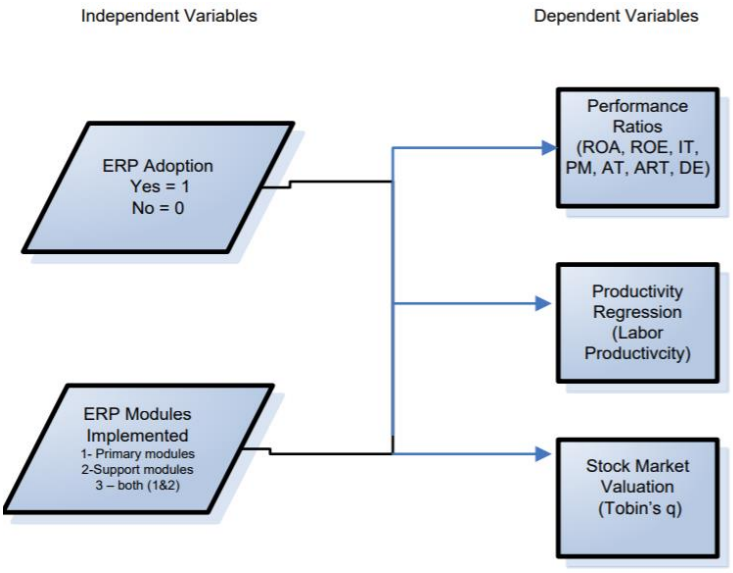


Figure 22 – ERP impact on company performance (Buleje, 2014)

In a subsequent work, Ruivo (2020) explored the impact of using an ERP system and ERP capabilities, which included factors such as Collaboration, Analytics, Web Portals, Add-ons, and examined their impact on ERP value, that reflected the benefits that companies could potentially gain by ERP system usage (figure 23). The research was conducted among LEs operating in different industries (manufacturing, prof. Services, retail) and different countries (Germany, Portugal and United Kingdom). To investigate the relationship between constructs the author used PLS-SEM method. As a result, the author stated that ERP use, Collaboration, Add-ons and Analytics have positive impact on ERP value. Then, using the ERP use as a moderator, the author stated that companies with High value of ERP use, in other words - who actively use ERP system functionality, gain higher the final ERP value.

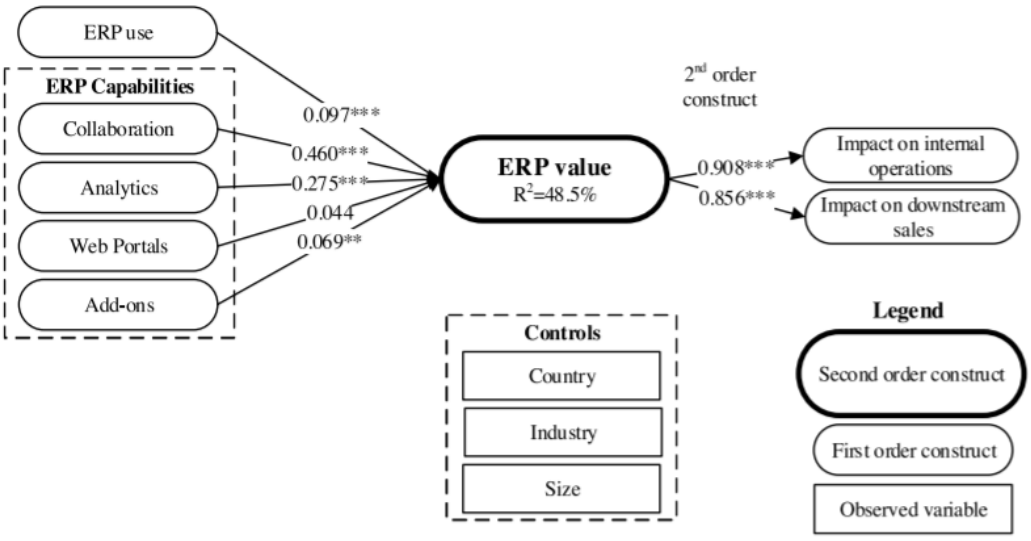


Figure 23 – Impact of ERP use and ERP capabilities on ERP value (Ruivo, 2020)

In next paper the author Parthasarathy (2016) investigated the impact of ERP Packages that reflected as Standard and Customized packages (figure 24). Thus, the author in his work compared the effects of a customized ERP system and Standard Package, in which case the impact on the efficiency of using an ERP system will be higher, therefore, the positive outcome from ERP system usage based on customized or standard set of packages will be potentially higher. Sample size of research is 30 companies that implemented ERP systems, and for the evaluation the impact the author used correlation analysis. Based on the results of the study, the author concludes that the higher the ERP customization, the lower the effectiveness of the ERP packages. At the same time, the author also says that the study of the impact of customized ERP solutions will allow companies to understand in more detail the need for customization, a clear understanding and focus on the necessary ERP functional modules, and ERP system developers to better develop modules, focusing on the necessary and most effective from the point of view of the final positive impact on the effectiveness of the organization as a whole.

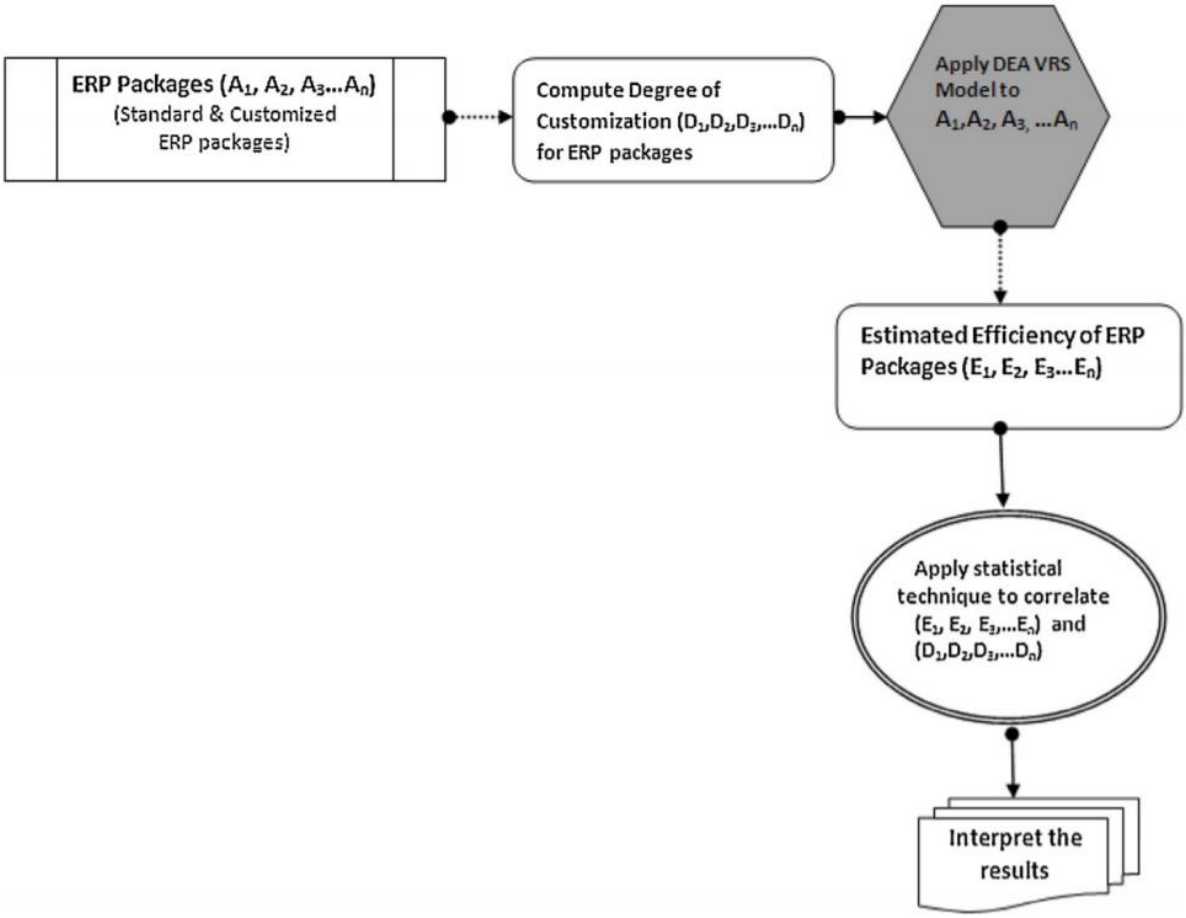


Figure 24 – Framework of investigation the effectiveness of ERP packages (Parthasarathy, 2016)

The following work of F. Acar (2017) was considered, in which Financial Performance acts as Company Performance (figure 25). The model Acar applied in his research includes constructs such as ERP Usage, Knowledge Management, Operational Performance and Financial Performance. The model examines the direct impact of ERP Usage on Operational Performance and how the generated Operation Performance metric affects Financial Performance. The indirect effect of ERP Usage on Operational Performance, affecting Knowledge Management as mediator is also separately examined. The result of this study shows that the author's hypothesis that ERP Usage positively and directly affects Operational Performance was not supported, but there is an effect of full mediation (when the construct affects other only indirectly), thus ERP Usage positively affects Knowledge Management and indirectly affects Operational Performance.

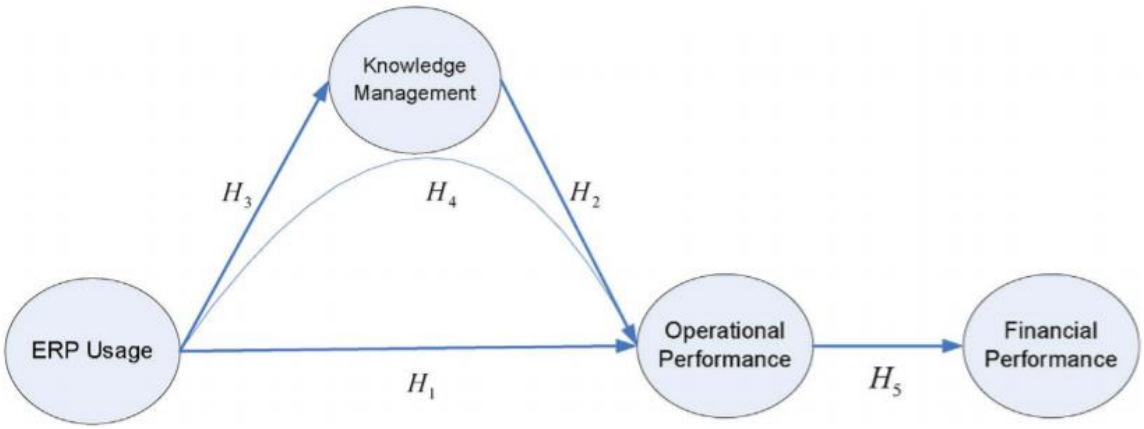


Figure 25 – ERP & Knowledge Management Impact on Performance Model

Thus, an analysis of the models and research methods that were used in previous works will allow us to form a representation and model of the Impact on Company Performance ERP, which will form the basis of further research and will be used to determine the nature of the impact of the ERP system on SMEs in Additional Education Market. It is also worth noting that there are currently no studies examining the impact of ERP systems on the Company Performance in Additional Education Market, therefore the structure of the ERP system that specializes in this industry and which could form the basis of the study will need to be investigated additionally, about which there will be described in more detail in the next chapter.

Research Gap

Based on the results of a review of the scientific literature, in particular, works that examine the impact of an ERP system on business performance of organizations, it can be concluded that there is no evidence shows that for SMEs companies operating into different markets and exactly as the

case of this research – in additional education market – the implementation of ERP systems is a way how they can positively impact on company performance by influencing both financial and non-financial performance.

Taking into account how highly competitive additional education market in Russia is and what is the need for SMEs with limited resources to understand in advance whether they will gain a competitive advantage in the future by implementing one or another IT solution of automatization or digitalization, while spending resources and time on implementation and adoption, the competitive advantage variable is included into the model in order to study the influence of the ERP system on the formation of competitive advantage, and then use this variable to verify mediation - an indirect effect of the ERP system, i.e. check whether the system affects efficiency by affecting the competitive advantage of the company.

Thus, for SMEs which operate in the fast growing market of additional education, the implementation ERP solutions and its impact positive impact on company performance as evidence still should be demonstrated, taking into account the share of ERP implementations in education industry that is undetermined (TAdviser, 2017) due to small amount of implementations, and that mostly SMEs in Russia are not ready to implement such digitalization and automatization systems, but they are interested in it (Research of Mail Group, Skolkovo, Bank "Открытие", 2019). Therefore, it's needed for SMEs to see the positive cases of implementation such technologies as ERP systems with certain set of modules showing, that ERP is an effective instrument of improving company performance, despite the fact that it's mainly costly initiative in terms of limited resources of SMEs, thus in order to create such precise understanding in terms of final value as positive impact.

Thus, this study intents to cover the absence of understanding of ERP value for SMEs operating in additional education market, showing the impact of ERP system on each of the essential indicators of Firm Performance for additional education market as a service market, basing on literature review the proposed model is based on ERP modules as a framework, that used by (Buleje, 2014; A. Madapusi, 2012; Kallunki, 2010; Hitt et al., 2002), what will allow to assess ERP impact depicting the impact of each module. But for this the author needs to understand exactly which modules in a particular solution in additional education market, taking into account the aspect of industry-specific solutions and customization, therefore the model will take into account only those factors of ERP what users can potentially use, and do not investigate such ERP solution doesn't have, otherwise it will lead to distortion and meaninglessness of the gained results. The final model which includes financial and non-financial performance indicators, such as Customer Satisfaction, Market Effectiveness and Profitability (figure 26).

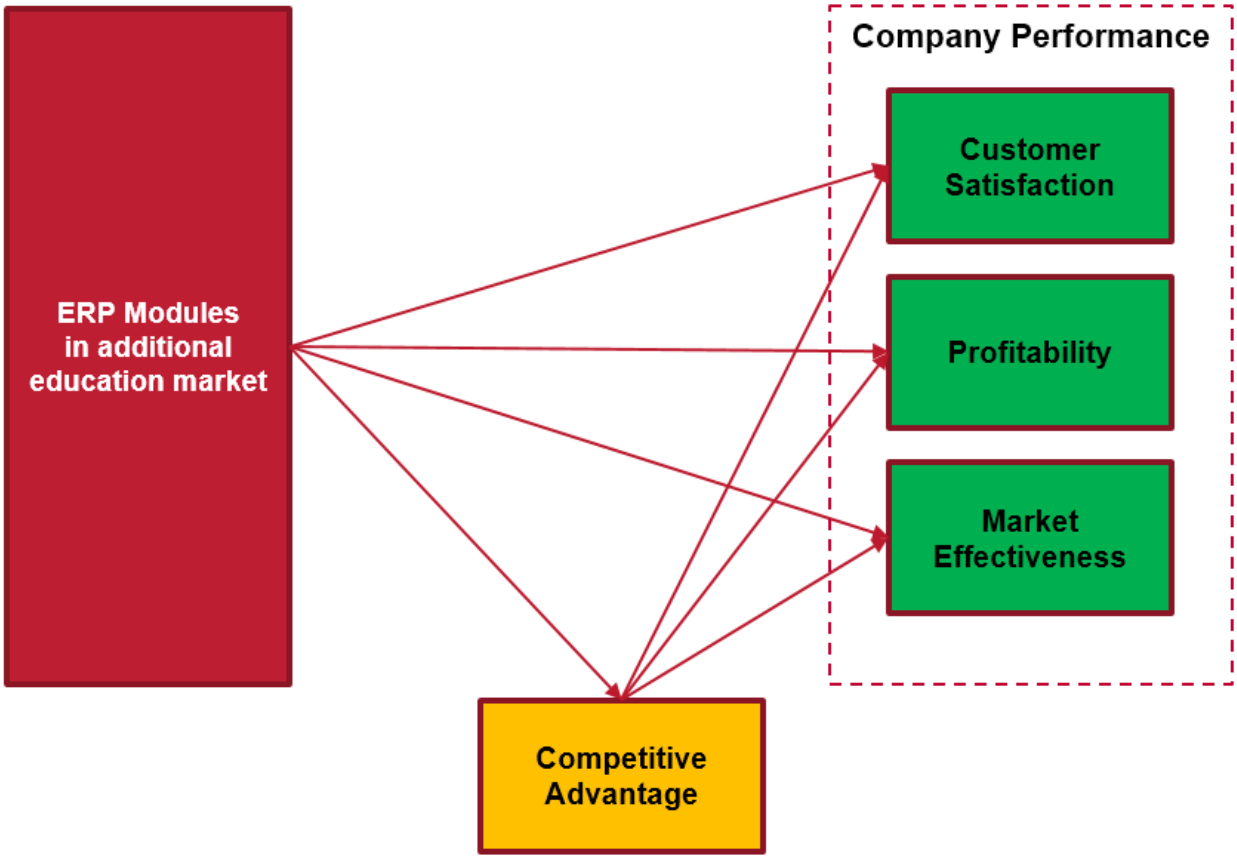


Figure 26 – Simplified proposed model of the study

The following model suggests using a latent variable as a competitive advantage as a mediator, Education ERP Modules based on SMEs needs and industry specificity that for now are not recognized and will be discovered in Chapter 2 and how they will influence Customer Satisfaction, Profitability, Market Effectiveness. Thus, the model includes direct and indirect effects on Competitive Advantage and Firm Performance constructs such as Market Effectiveness, Profitability and Customer Satisfaction.

Basing on the fact that among the previous works there are no ERP impact researches in industry of additional education or education, therefore, there are no models exploring the impact of the ERP industry specific of additional education market, and given the fact that each developer of ERP systems has its own set of modules and functionality, especially if the developer focuses on a specific segment or industry, it is necessary to determine what functionality and which modules such developer specialized on additional education market has. At the same time, 1C and Education ERP on its official website indicates only the functional features of their solutions, in other words, which business process they cover, but does not give a clear picture of which ERP modules are used by additional education schools. Therefore, it is necessary to contact the company, obtain the necessary information about the modularity of the ERP system and form a model for assessing the impact of

the ERP system on Company performance, where the ERP system will be represented by the modules used by SMEs in this market.

Summary

This chapter discusses the ERP system, its architecture, basic modules, implementation goals, and statistics on use in the world and in Russia. The highly competitive market of continuing education and the need and willingness to implement digitalization tools, ERP systems are considered. ERP systems that can be used and focused for a given market are considered. Company Performance definition has been generated that includes 3 dimensions (including both financial and non-financial dimensions). The impact of an ERP system may vary depending on Industry, Company size, ERP solutions and Modules. The previously used models for assessing the impact of ERP systems are analyzed, while there are no statistical studies of the impact of the ERP system, a clearly described model and structure of the ERP system, taking into account the modules used by companies in the additional market segment. A Simplified proposed model has been formed and will be developed in the next chapter.

2 RESEARCH METHODOLOGY

2.1 Research design

Since each ERP system includes only those modules that are necessary for the company to solve specific tasks of the market in which the company operates, it is necessary to find out which modules are used in Education ERP and on the example of this system show what impact SMEs, operating in Additional Education Market, can get from Education ERP usage and answer the question of how the ERP system, which includes a unique and the necessary set of modules for business needs SMEs operating in additional education market, effects their performance leads to use method of case study (Onghena et al., 2019). And going further the necessity of define specific modules of ERP system (qualitative method) and it statistically measure the impact on company performance (quantitative method) leads to use Mixed Methods Case Study research help to discover in-depth evidence for a case by using quantitative and qualitative data collection methods (Eisenhardt, 1989).

Qualitative data collection method involves the study of a specific set of modules and their functional features implemented in ERP by company-developer Liga Sporta and 1C. For this purpose, it was necessary to contact company representatives, conducting interview which is considered an effective method to go deeper into details and gain necessary information about the certain phenomena (Eisenhardt, 1989), and find out which modules are used in the ERP system that cover the needs of additional education organizations, centers and schools in the Russian market.

To analyze the influence of the modules used in this system for the market segment of continuing education, the quantitative method of analysis which is one of the most effective tools which suggested to use to determine the nature of relationship between factors and based on survey and questionnaire that allow to apply statistical method (Kallunki, 2010; Galy, 2014; Gupta, 2018) aiming to measure to what extend the users of ERP use certain modules and to what results such usage lead and have impact on in terms of competitive advantage and company performance (customer satisfaction, profitability and market effectiveness).

2.2 Data collection

In Chapter 1 the analysis of ERP systems that specialized on additional education market was provided and based on the results the author figured out two ERP systems in Russia: 1C: General Education Institution and Education ERP. Having contacted the representatives of the manufacturing

company 1C: Educational institution, the company refused the offer to conduct a study of the impact of the ERP system on users, while the developer of Education ERP agreed to participate in the study, and agreed to provide information about the company and gave a permeation to conduct a survey among the schools owners who are Education ERP users.

Company "Liga Sporta" is a developer of cloud-based software Education ERP system that focuses on automatizing the business-processes of companies that work in additional education market segment, in other words for commercial schools and centers. The company "Liga Sporta" was created in 2012. Nowadays, the headquarter of the company is placed in innovative technological center Skolkovo in Moscow (Education ERP, 2020).

Since 2012, the company has operated in the market of schools of additional education for kids from 3 till 16 years old in average, but also has some additional offers for other age groups like adults. The model that company mostly uses is the franchise – thus company launches new school' brand, develops own schools, increases the scope of schools, their service and products, then runs new branches of schools by franchising, attracting new partners.

Nowadays there are more than 10 brands that company develops and provides franchise support in terms of technologies, business, marketing, operations, such as: Soccer School "Junior", Soccer School "Spartak Junior", Ballet school "Russian Ballet", School of coding and informational technologies "Juniorcode", School of Bloggers "Liga Blogerov", School of Chess "SHAGI", School of English language "GET English", School of emotional intelligence "EI kids", School for actors "MAIN CAST", Centers of cybersport "Ctrl Play", Centers of preparation to state exams "EGE".

Currently company has franchise schools in more than 220 cities around the globe, including such countries as Russia, Ukraine, Kazakhstan, Singapore, Czech Republic, Moldavian Republic, and the USA. The biggest chain of soccer schools for kids "Юниор" that is considered as one of the hugest chains in the worlds, and now the number of schools is more than 430 that are placed in more than 210 cities.

The main feature of the company that allows to develop further in terms of huge scope is the ability to collect and analyze managerial information and for these purposes company has created ERP system for such market as schools of additional education, and constantly improving this system that allows company's franchise partners to control all processes, get actual analytical information, make decisions, manage the relationships with their clients and see the progress of the kids in the school. So, the company gains experience from different spheres what helps to increase the expertize and the quality of the brands and brands' products, services, lessons and therefore kids' progress.

Thus, for getting the understanding the peculiarities of industry-specific ERP system "Education ERP" by Liga Sporta, its functionality and which set of modules Education ERP provides

to SMEs of additional education market the author contacted the companies representatives, and specifically – representatives of technical department which develops Education ERP system.

Theory provides with the understanding, which ERP modules can be included covering the specific needs of the company and the full set of potential modules include: Supply Chain Management Module, Human Resource Management Module, Performance Management Module, Quality Management Module, Product Lifecycle Module, Knowledge Management Module and Customer Relationship Management Module, Finance Module (J. O'Sullivan, 2014). The set of potential modules was used to form the check-list for the analysis of Education ERP modules and during the conversation with Liga Sporta company representatives. Accordingly, based on the theory (J. O'Sullivan, 2014), the author created questions that will help to determine what modules are in the ERP of a given company (example Supply Chain Management module):

- Does Education ERP have module Supply Chain Management?
- Could you describe the functionality of this module?

The full set of questions are the following:

1a) Does Education ERP have module Supply Chain Management?
1b) Could you describe the functionality of this module?
2a) Does Education ERP have module Human Resource Management?
2b) Could you describe the functionality of this module?
3a) Does Education ERP have module Performance Management?
3b) Could you describe the functionality of this module?
4a) Does Education ERP have module Quality Management?
4b) Could you describe the functionality of this module?
5a) Does Education ERP have module Product Lifecycle?
5b) Could you describe the functionality of this module?
6a) Does Education ERP have module Knowledge Management?
6b) Could you describe the functionality of this module?
7a) Does Education ERP have module Customer Relationship Management?
7b) Could you describe the functionality of this module?
8a) Does Education ERP have module Finance?
8b) Could you describe the functionality of this module?

This step provided the understanding which modules Education ERP provides and what the functionality of each module.

For the functionality analysis that provides more deep understanding the specificity of each module functionality and for covering such researching needs the company Liga Sporta provided the demo access to Education ERP system to figure out the functionality of each determined module that Education ERP system. Thus, the functionality of each module was covered and described in next Data Analysis subchapter.

2.3 Data analysis

Below is a brief set of the main functionality of the ERP system, divided into modules of the Education ERP system based on the analysis of theoretical literature that provide information about the specificity of the potentially existing modules, inner analysis of the modules and their functionality that implemented in Education ERP system, and interview and conversations with representatives of technical department of the company that is directly involved in the development of the functional allows to determine modules and their functionality. Thus, set of modules of Education ERP that focusing on additional education market are as follows:

Customer Relationship Management module:

- Maintaining a customer base.
- Segmentation of sales stages management.
- Segmentation of the customer base.
- Analytics of marketing and sales channels.
- Sales analytics.
- Analytics of financial performance indicators of the school.

Quality Management module

- The system of reviews and evaluations of schools and teachers.
- Assessment and analysis of the quality of classes.
- Assessment and analysis of student involvement in the educational process.
- Assessment and analysis of student progress, monitoring system.
- Formation and management of school hours.
- Formation and management of educational groups.
- Analysis and segmentation of students by level of training.
- Calendar system of communication with parents of students.

Human resource management module

- Management of the school team, assignment of roles.
- Task management, task assignment, tracking feasibility.
- Manage and track KPI employees.
- Search and hiring of performers, outsourcing (internal exchange of external specialists who are provided with limited guest access to Education ERP).
- Rating of teachers.
- Rating of all school staff and all schools.
- Tools for employee training and adaptation to work.
- Tools for employee motivation.

Knowledge management module

- Management of training programs and lessons.
- Accumulated educational methods and materials.
- Tools for managing formalized school knowledge.
- Tools for formalizing knowledge - creating abstracts, exercises, training programs.
- Accumulated educational materials related aimed at adapting partners to work in Education ERP and developing business competencies necessary for this market and its specifics.
- Tools for monitoring, managing and sharing knowledge among partners.

Summarizing the analysis results Education ERP system allows school owners to manage the school from a web platform, all the necessary data is stored on the server and loaded in real time. This system allows school owners to manage all schools, when it comes to more than one school, in one place. Automation Education ERP involves synchronizing the work of school departments – accounting, school management, teachers, sales consultants (front-managers of schools), even third-party specialists, providing them with guest functional access limited as performers of certain tasks. Automation of attendance and subscription activities (represented by ID cards), customer service and management, KPI calculation, financial planning, cost accounting and management, customer segmentation through sales channels through which the application ends up in the final school, call-center work is automated , automation of the school's website, the platform of the parents' personal account, social networks, bringing all the data into the Education ERP system and allowing them to be managed from one place.

This system has a number of functional advantages and features that allow to automate the activities of the school systematically work with data, process and make high-quality management decisions based on the analytical tools of this system.

Thus, Education ERP modules were identified, the impact of which on Company Performance will be investigated as a part of Education ERP system in the further research development.

2.4 Case specific model and Constructs

After getting the understanding which modules Education ERP has, it's time to form Case specific model that will be used for measuring the impact on company performance of SMEs in additional education market. Considering the results obtained, the author decided not to include all industry specific Education ERP system modules in one construct ERP, but to divide the obtained modules into separate individual factors, which will allow studying the influence of the ERP system in the context of each module separately. Similar approach was used by Ruivo (2020) dividing ERP into capabilities and investigate each impact of ERP capability on company performance separately. Thus, the model will show how each module affects the formation of the Competitive Advantage and the company Performance indicator – Customer Satisfaction, Profitability and Market Effectiveness and allows you to study the impact of ERP in detail (figure 27).

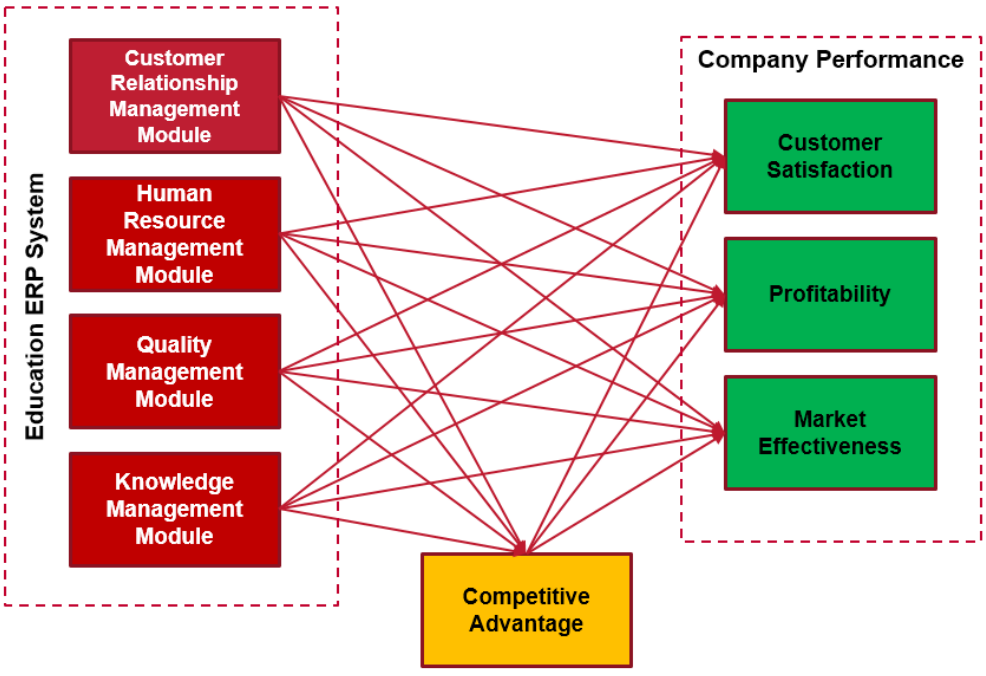


Figure 27 – Case specific model

After determining the modules and functional features of the Education ERP of company Liga Sporta, it's time to go to the next step – to form a model for studying the impact of modules on Company performance constructs: Customer Satisfaction, Profitability and Market Effectiveness.

And for this purpose it's necessary to overview previously used ERP impact models to find out which model and constructs can be implemented for research purposes of current research (table 5).

Table 5 – Assessment of ERP impact models

Model	CRM	QM	HRM	KM	CA	CS	PRO	ME	Education segment	Applicability to the research
ERP management control systems & Firm Performance (Juha-Pekka Kallunki, 2010)	-	-	-	-	-	-	+	-	-	ERPS, Non-financial performance and financial performance can be taken into account
ERP and SCM model (Huseyin Ince, 2013)	+	-	-	-	+	-	+	-	-	Competitive Advantage and Firm Performance can be taken into account
ERP and SCM model (Yi-fen Su, 2013)	+	-	-	-	+	-	+	-	-	Customer & Relationship Integration can be taken into account
Decision Support Effect and ERP (Bulut Aslan, 2019)	-	-	-	-	-	-	+	-	-	Performance can be taken into account
ERP Extended Use (Simona Sternad, 2019)	-	-	-	-	-	-	-	-	-	Not applicable, but shows detailed way how to evaluate ERP functions
ERP & Knowledge Management (Fatih Acar, 2017)	-	-	-	+	-	-	-	-	-	Knowledge Management Factor is taken into account
CRM & Firm Performance (Shilke 2010)	+	-	-	-	-	+	+	+	-	Customer Satisfaction Profitability Market Effectiveness
ERP use, capabilities, value (Ruivo, 2020)	-	-	-	-	-	-	+	-	-	ERP value can be taken into account
ERP impact on company performance (Buleje, 2014)	+	-	+	-	-	-	+	-	-	ERP modules such as CRM, HRM that are taken into account
ERP impact on financial performance (Guly, 2014)	-	-	-	-	-	-	+	-	-	Financial performance constructs can be taken into account
Cloud ERP impact (Gupta, 2018)	+	-	+	-	-	-	+	-	-	Financial performance constructs can be taken into account

As it was mentioned in the chapter 1 the analysis of the previous academic papers allowed to formulate the model for the reach and what's more to define constructs, adopting them into ERP system impact analysis on Company Performance (table 6).

Table 6 – Constructs of the model

Construct	Definition	Number of Items	Type	Key References
Customer relationship management ERP	Using tools of Education ERP system by partners and ERP users to work with clients, build relationships, provide segmentation, better understanding their needs, targeting and sales.	7	Scale	Martin Reimann & Oliver Schilke & Jacquelyn S. Thomas (2010).
Quality management ERP	Using the tools of the Education ERP system to manage product quality, create value, evaluate and control the quality of service.	7	Scale	Patyal V. (2017)
Human resource management ERP	Using the tools of the Education ERP system to manage the team, teachers, school managers, employees, management and control of KPI, monitoring results.	6	Scale	Yaping Gong Kenneth S. Law and Song Chang Katherine R. Xin (2009)
Knowledge management ERP	Using Education ERP tools for knowledge management, accumulation of experience in order to scale successful experience to other groups, schools and partners. Using a unified database of methodologies and educational materials of school brands represented in Education ERP.	7	Scale	Acar Fatih M. (2017)
Customer satisfaction (Performance)	Indicators that describe school customer satisfaction.	5	Scale	Martin Reimann & Oliver Schilke & Jacquelyn S. Thomas (2010)
Profitability (Performance)	Factors that allow us to evaluate how successful the school is in terms of profitability, profitability, achievement of financial goals.	4	Scale	Martin Reimann & Oliver Schilke & Jacquelyn S. Thomas (2010)
Market effectiveness (Performance)	Factors describe the school's success in the market, which is characterized by sales growth, market share growth, etc.	6	Scale	Martin Reimann & Oliver Schilke & Jacquelyn S. Thomas (2010)
Competitive advantage	Factors describe competitive advantages as possessing unique product characteristics, the difficulty of competitors repeating the product, which makes it possible to understand the respondent's assessment of competitive advantages explicitly.	4	Scale	Nuryakin (2018)

Customer Relationship Management (CRM)

Though there are references to Customer Relationship Management in works that were mentioned before and investigate ERP usage influence on Firm Performance, but there is poor description of the Customer Relationship Management factor from the side of ERP system usage. Thus the factor of Customer Relationship Management that was suggested for usage in the model and formed by using the work of O. Shilke (2010) where the model covered widely all necessary aspects of Customer Relationship. Thus CRM widely described such as: CRM initiation, CRM maintenance, CRM termination. This model and previous ones (O. Shilke, 2010) have significant results in testing the ERP system effect on firm performance. Therefore, the study includes Customer Relationship Management concept integrating in ERP usage and adopt CRM variables.

Quality Management (QM)

Quality Management concept as a part of ERP functionality is not covered fully as we can see in table 6, it should be said even there are no researches that investigate the impact of ERP system on Quality Management and it's direct or mediating effect on Firm Performance. The work of Vishal P. (2017) was taken into account for Quality Management Latent variable creation. The model shows the significance of the effect from Quality Management practices on Firm Performance.

Human Resource Management (HRM)

The impact of the ERP module that based on Human Resource Management practices or functionality usage is also represented and investigated but papers mentioned above do not allow to build separate construct of HRM module of ERP, thus it opens also additional way to fill the gap including Human Resource Management as ERP usage module to investigate it's impact on Firm Performance. So, the work of Kenneth Law (2009) was taken as a base of latent variable that will define Human Resource Management Module of ERP usage and reflected in the model of the study.

Knowledge Management (KM)

As a key functional part of ERP systems and especially Education ERP it's important to take into account Knowledge Management Latent Variable and for this purpose is used the work of Fatih Acar (2017). This work takes Knowledge Management as mediating effect on firm performance and what's more that ERP and knowledge management are complementary being as a results of the research. This study takes Knowledge Management based on the model of F. Acar (2017).

Competitive Advantage (CA)

Though competitive advantage was mentioned several times in previous works that investigated the ERP usage impact and SCM practices with accordance with Competitive Advantage and its indirect and direct effects on Firm Performance it's still there is a gap of Competitive Advantage variables' specific and appropriate definition for implementation to the model as latent variable. Therefore for this purpose the work of Nuryakin (2018) that based on the sample of 200 cases which in this work' case has significant effect on Marketing Performance that describes such variables as: Sales growth, Profit growth, Number of customers growth, what prove the influence of Competitive Advantage on Firm Performance but here without ERP usage.

Company Performance

In this research in order to analyze performance in-depth in order to have detailed overview of the impact of modules implementation on Firm performance in this research it's suggested to use appropriate for that purpose model that contains necessary constructs such as Customer Satisfaction (CS), Profitability (PRO), Market Effectiveness (ME), that allows the model to cover growth of sales, revenue, market share, new lead stream, customer retention, customers' loyalty growth, achievement the financial goals and value creation (Oliver Schilke, 2010).

2.5 Construct Operationalization

The implemented questionnaire for the investigation impact of ERP system on company performance of SMEs in additional education market was formed from the literature review outcomes and insights and cover eight separate parts.

Part 1 of the survey contains introduction message that describes respondents who are franchise partners of Ltd "Liga Sporta" and are users of Education ERP as a solution of automatization of the school work and its management. Introduction message welcome the respondent describe the goal of the investigation that is mainly focuses on the impact investigation between Education ERP modules usage and firm business performance.

Part 2 is about the customer relationship management as ERP function usage covering work with incoming leads, maintenance the relationship with value customers, maintenance the relationships with ex-clients for their further returning and finally sales. According to Yi-Fen Su (2010) the scale for the effect measure is a 7-point Likert Scale that states from 1 "Absolutely disagree" to 7 "Absolutely agree".

Part 3 concerns about Quality Management adoption through Education ERP functionality and their active usage by schools owners. So the items that form the Quality Management Part are

mainly based on the Patyal V. (2017) using 7-point Likert Scale with end points such as 1 “Absolutely disagree” and 7 “Absolutely agree” and being as a part of Quality Performance measurement items were adopted to Quality Management ERP usage variables and list of questions and form the part of the questionnaire.

Part 4 of the survey focuses on Human Resource Management ERP Usage that contains items that were formed basing on Kenneth Law (2009) and using as well Likert 7-point scale from 1 “Absolutely disagree” to 7 “Absolutely Agree”, moreover it should be said that there is a gap in terms of investigation the Human Resource Management and ERP implementation or usage and their effect on each other and finally on the firm performance thus on the base of model Kenneth Law (2009) HRM items were formed for the study adopting the concept of HRM usage in ERP functionality.

Part 5 concerns about Knowledge Management and its implementation and usage through the functionality of the ERP system basing on the work of Fatih Acar M. (2017) and ERP modules usage impact by Kallunki Juha-Pekka (2011) formed on the base of 7-point Likert Scale from 1“Absolutely disagree” to 7 “Absolutely Agree” including the usage of knowledge management instruments that give opportunities for the school to gain experience, data, information, manage it, accumulate and distribute successful experience on other schools of franchise chain.

Part 6 includes questions about Competitive Advantage that reflect the school recognition its competitiveness on the market and thus reveal the reality how schools feel the rivalry in the market, how strong and unique the product and services. This concept was implemented on the base of Nuryakin (2018) which is also based on 7-point Likert Scale where 1 “Absolutely disagree” and 7 “Absolutely agree”.

Part 7 provides the questions that measure the school’ Business Performance taking into account such aspects of the firm performance as Customer Satisfaction with growth of their number and loyalty, Profitability (with the growth of Revenue, ROI, achieving financial goals and etc) and Market Effectiveness (the growth of Market share, Sales and etc.) as it provided by Oliver Schilke (2010) as the main items of the measurement Firm performance connecting with CRM influence.

Part 8 contains questions that describe the Demographic characteristics of the sample such as: gender, age, total number of Schools that ERP user has and manages, school’ brand, entrepreneurial experience, and frequency of ERP usage. Entrepreneurial experience, School brand can be especially helpful for analyzing the group with high experience and their results and success in terms of Firm Performance, but also to analyze separate segment for understanding in more details the situation with the specific brand and its product. The survey was designed basing on the literature review and models that were used for measuring the impact of ERP implementation and ERP usage on Company Performance.

2.6 Quantitative method

As it was mentioned above, the research problem is to find out the effect on business performance from implementation of ERP systems, what a nature of the effect of each aspect,– it can enhance the way of conducting business or increase the effectiveness of usage ERP, modify and enhance these aspects in order to provide better instruments for those elements of ERP that bring significant contribution to business performance.

Quantitative method – is the main line of the analysis: Structural Equation Modelling (SEM), surveys that are based on Likert Scale, descriptive analytics, exploratory factor analysis (EFA), confirmatory factor analysis (CFA), mediation effects and moderation.

Exploratory factor analysis – method of reducing the data and making smaller the set of variables and in the same time allows to define which variables are included in one factor, underlying theoretical structure of the phenomena (Gerbing, 1988).

Confirmatory factor analysis – statistical method of the analysis that is used to test how estimated variables represent the number of latent variables, and also is used for confirming or rejecting the measurement theory (Gerbing, 1988).

In order to investigate the impact of ERP system on company's performance Structural Equation Modelling (SEM) (Gerbing, 1988) is suggested to use, which is an systematic analysis of causal relationships between variables that are included in the model. Path analysis – analysis that is based on multiple regression which is aimed to provide the estimation of causal connections among variables. Structural equation modelling is a multivariate statistical method of analysis that includes factor analysis and multiple regression analysis for measuring observed variables and latent constructs, estimating the multiple and interrelated dependence (Gerbing, 1988).

Based on the analysis of previous academic work, most researchers chose the SEM method to identify the relationship between the studied objects, using the results of previous researchers and their work, which potentially improves the quality of work and makes good use of this research method.

Thus, to test effect in Chapter 2, the Structural Equation Modeling analysis method that can be based on the Covariance-Based SEM (CB-SEM) method and Partial Least Square SEM (PLS-SEM) method was chosen. The difference between these two methods of analysis is that PLS-SEM method has less restrictions such as: at least 50 cases in sample, while Covariance-Based - from 100 observations, moreover it's necessary for CB-SEM to provide validation tests of the model such convergent validity and discriminant validity what additionally proves the model, testing results and make the research outputs more reliable for further implication and development. Thus, CB-SEM is considered as more precise statistical analysis method.

In order to clarify the methodology let's have a look at suggested structure of the research which is as follows: estimate model, conducting reliability analysis, EFA analysis with KMO test and Bartlett's Significance tests which is necessary step because the module uses new implied latent variables and constructs, CFA, path analysis which goes with checking necessary statistical measures such as Goodness of Fit (GFI), Comparative Fit Index (CFI), P-value (the evidence of significance of the test), Root Mean Square Error (RMSEA), p of Close Fit (PCLOSE), Tucker-Lewis Index (TLI), CMIN / DF (relative X2).

Thus, the next step is to test model and relationship determination, assess them in terms of degree of influence of latent variables on the dependent variables, which will determine how and what, from the point of view of ERP modules, the system affects Business performance of the school. This information will be useful from the point of view of the development vector of the ERP system, will lead to an understanding of the needs of users of Education ERP, an assessment of the active usage Education ERP system experience and the impact on the ultimate success of the school.

To finish with it's important to highlight that currently there is no investigation of the effect on business performance from ERP system implementation and usage in the market of additional education, which is based on SEM approach, using latent variables such as Customer Relationship Management, Human Resource Management, Knowledge Management and Quality Management as modules of ERP system and implemented in SEM model as latent variables.

Summary

In this chapter, Research Design was formed, which consists in the use of Mixed Methods Case Study, which will allow us to study the nature of the phenomenon within the Case Study - for example, industry specific ERP system and ERP users - SMEs operating in Additional Education Markets. Since the lack of literature did not allow to clearly define the modules of the ERP system specialized in Additional Education Market, an interview was conducted during which the necessary information was received about what modules are needed by additional education schools, about the modules of this ERP system and their functionality. The information obtained allowed the formation of a Case Specific Model, which included Education ERP modules – CRM, HRM, QM, KM, and based on previous work operationalize them by compiling a survey. This approach will allow to collect data among Education ERP users and analyze them using the Covariance-based Structural Equation Modeling Method, which will allow to determine the nature of the impact of the Education ERP system on the Company Performance of continuing education schools.

3 CASE STUDY

3.1 Description of the data collected

For the data collection the survey with the list form of 52 questions were used among Education ERP users who are in total 374 Education ERP franchise users in Russia– school owners and their main representatives who were invited to pass the questionnaire (appendix 1-3).

As it was mentioned above, to evaluate the answers the Likert scale is used, which measures the degree of consent of the respondent from 1 to 7, where 1 – Absolutely disagree and 7 – Absolutely agree. Thus, answers will be received to the following questions of the effectiveness of Education ERP and its effect on the vision of the business, the increase in the competitiveness of schools in the market. Questions are divided into modules that are used in this ERP system: knowledge base, team work, CRM system and customer care, analytics, finance and reporting, school performance analytics and school performance. Factors are highlighted during the analysis of the modules of ERP systems, and in the same time the model takes into account additional modules of the Education ERP system, which allows taking into account the specifics of the market and industry for which this system was developed.

Then, using the Google form for survey, the answers to questions from franchisee schools of the "Liga Sporta" and users of the ERP system will be collected, which will allow to analyze the data using the SPPS tools, where the data will be cleaned and organized into the necessary structure. Then a factor analysis will be carried out, which will show which variables should be grouped into a latent variable. The next stage is taking into account the results of factor analysis, then we work with variables in Amos, where the model is drawn and the analysis of the influence of factors on the dependent variable takes place.

The study was conducted among 138 partners of the Liga Sporta, who are active users of the Education ERP system, the condition for passing the test was the experience of using the ERP system from 1 year, otherwise the survey stopped. In this way, unwanted responses were filtered out, which in turn also allowed to avoid wasting time participating in the study. Also, in order to ensure the required quality of the respondents, through the Education ERP system, invitations were sent as a notification (in the Education ERP system, mobile application, by mail), to participate in the study only to those partners who have been using Education ERP for more than six months, which is enough time for adaptation to the solution, implementation and use at all stages of doing business and have a certain effect on the school's business processes as a result, which allows to add up to the education ERP tools. Thus, the survey gained 138 answers which is 37% of the total amount of partners. It also

should be admitted that there was no missing data in the final sample because each question is obligatory for answering, thus the data full and coherent.

Thus, as mentioned above, 138 people took part in the study, of which 100 (72.5%) were men and 38 (27.5%) were women. At the same time, the age of the vast majority of respondents 63 (45.7%) is 34-41 years old, the second age group according to the number of answers is the group 26-33 years old - 51 participants (37%). The smallest group is 50 years and older – 2 people (1.4%). The study also clarified information on the number of respondent schools owned by which they are the owners and as a management tool of which they use Education ERP. The results show that the majority of respondents 60 (43.5%) run 1 school, the second largest group is 2-3 schools and 58 answers (42%). It should be noted that this sample reflects entrepreneurs and managers, and according to the results of them, the majority of 57 respondents (41.3%) have 1-3 years of entrepreneurial experience, the second group by the number of answers is those whose entrepreneurial experience is 3-5 years - 44 of the respondent (31.9%), there are also those in the sample who have entrepreneurial experience of less than 1 year — their minority, 11 respondents (8%). Most entrepreneurs are owners of Junior schools (90 cases), Spartak Junior (56 cases), Russian Ballet (24 cases), Junior code (15 cases). Representatives of the STEPS, Ctrl Play, and USE schools did not participate in the survey. By the frequency of using Education ERP, the collected Sample shows that the majority – 92 (66.7%) use Education ERP regularly every day, the second group is “Once a day” – 25 respondents (18.1%), 10 respondents use ERP every 2-3 days , a combined analysis of regularity of use confirms the reliability of this sample and justifies the feasibility of further research.

Information on the number of groups, school brands, entrepreneurial experience, the regularity of using Education ERP was collected in order to include these indicators in the study and, if there is sufficient data, to check whether there is a significant relationship among a certain age group, age, gender, entrepreneurial experience with the active use of tools Education ERPs, which are divided into modules in the study, how usage activity affects Competitive Advantage, Customer Satisfaction, Profitability, Market Effectiveness - what are the average results dates and how much they are significantly different from each other, if it’s decided to use these variables as a Moderator variables, but in this case the collected data is not enough to conduct such a simulation.

The following is a brief summary of the demographic data of the study (table 7):

Table 7 – Socio-Demographic information of the Survey

Gender	Male	100 (72,5%)
	Female	38 (27,5%)
Age	18-25 years old	7 (5,1%)
	26-33 ears old	51 (37%)
	34-41 years old	63 (45,7%)
	42-49 years old	15 (10.9%)
	50 years old and more	2 (1,4%)
Number of own schools	1 school	60 (43,5%)
	2-3 schools	58 (42%)
	4-5 schools	12 (8,7%)
	6 and more	8 (5.8%)
Schools' Brands	Юниор	90 cases
	Спартак Юниор	61 cases
	Русский балет	24 cases
	Юниоркод	15 cases
	Эмоциональный	6 cases
	интеллект	2 cases
	Get English	2 cases
	Лига блогеров	2 cases
	Main Cast	1 case
	Школа Бенуа	1 case
Entrepreneurial experience	Less than 1 year	11 (8%)
	1-3 years	57 (41,3%)
	3-5 years	44 (31.9%)
	More than 5 years	26 (18.8%)
Frequency of ERP usage	Regularly each day	92 (66.7%)
	Once per day	25 (18.1%)
	Once per 2-3 days	10 (7.2%)
	Once per week	5 (3.6%)
	Several time per month	1 (4.3%)

The next step after description of gathered data is to go thought steps of EFA analysis in order to prepare precise factors and constructs that will describe the final model and allow to test the model in terms of nature of relationship by conducting CFA and structural modeling analysis.

3.2 Model testing

The data obtained during the study were processed in the SPSS, which allowed to convert and at the same time check the data for missing values. The converted values make it easier to use SPSS tools and better analyze data. According to their factor affiliation, all variables were given names, a description was added, and the necessary scales were selected. After organizing the data, the next step is to conduct exploratory factor analysis (EFA) among all the analyzed variables, that allows to understand which variables are combined into factors and what variables should be combined with others or, otherwise, be excluded from the analysis. After the necessary manipulations with these variables, a finite set of factors and their variables is obtained. It should also be noted that Kaiser-

Meyer-Olkin (KMO) Measure of Sampling Adequacy > 0.5 (0.862) and Bartlett's test of Sphericity confirms significance (0.000) of the factors extracted, allowing to continue with the analysis. All communalities of the variables are > 0.5 what proves the model relevance. The final model includes 19 items and each factor at least has 2 variables inside (appendix 5).

The number of factors identified by this toolkit confirms the existence of a connection among the studied variables and justifies the use of a theoretical model – 8 factors, 4 of which reflect the use of ERP system modules, 3 factors - Firm Performance, and 1 factor reflects Competitive Advantage. The next step is to confirm the Reliability of each factor separately. This step showed that each of the factors corresponds to the minimum required value of Cronbach Alpha > 0.7 (all data are shown in table 8), which confirms the reliability of the analysis and allows to go to the next stage – CFA.

Table 8 – Scale Reliability, Convergent Validity and Composite Reliability

Constructs	**Factor loadings**	**Mean**	**SD**	**CA**	**CR**	**AVE**
Customer Relationship Management (CRM)		4.995	1.917	.764	.83	.62
CRM4	.856					
CRM6	.816					
CRM7	.683					
Human Resource Management (HRM)		4.386	1.933	.837	.90	.75
HRM1	.892					
HRM2	.892					
HRM3	.812					
Quality Management (QM)		5.540	1.589	.806	.89	.80
QM6	.911					
QM7	.877					
Knowledge Management (KM)		5.496	1.544	.836	.85	.73
KM3	.855					
KM4	.857					
Competitive Advantage (CA)		4.511	1.495	.839	.94	.88
CA3	.952					
CA4	.925					
Customer Satisfaction (CS)		4.587	1.820	.875	.92	.84
CS1	.928					
CS2	.910					
Profitability (PRO)		6.129	1.404	.849	.84	.64
PRO1	.804					
PRO2	.733					
PRO3	.850					
Market Effectiveness (ME)		4.826	1.715	.918	.87	.77
ME1	.905					
ME6	.846					

CFA model testing is represented on the figure 28, that is placed below:

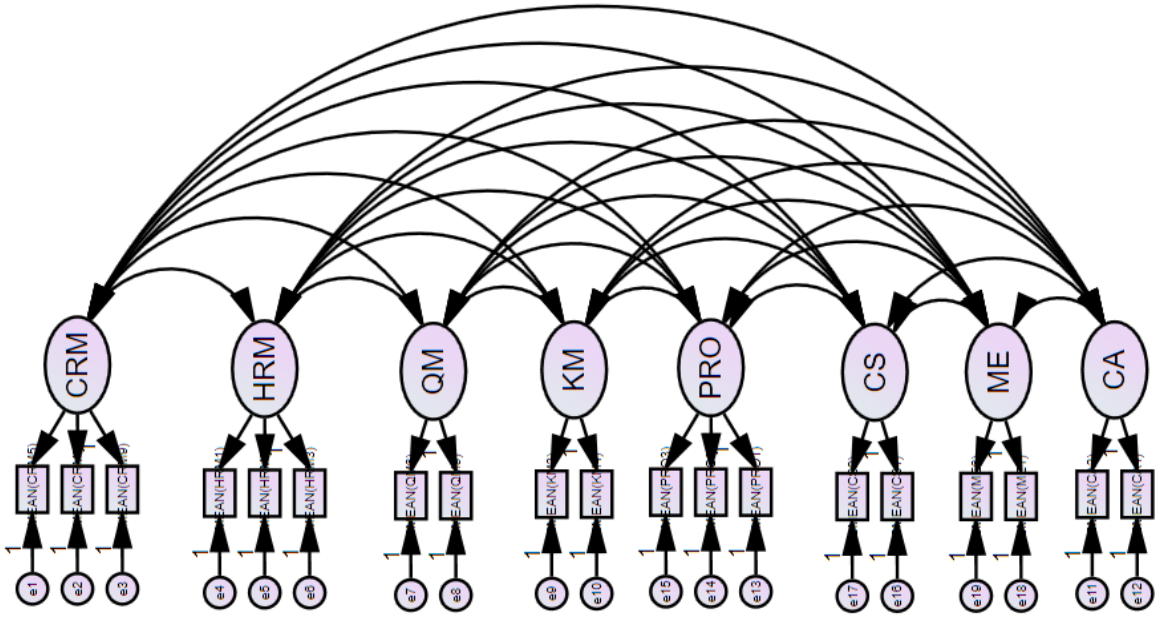


Figure 28 – CFA model

P-value of 0.034 shows that the model is significant and fit for further analysis. GFI or Goodness of Fit and CFI (relative X^2) reflects necessary threshold > 0.9. Measures of TLI, RMSEA and PCLOSE confirm the acceptance of further analysis of the model (table 9).

Table 9 – Measurement CFA model fit

Measures	**Estimates**	**Thresholds**
P-Value	0.034	< 0.05
CMIN	154.299	–
DF	124	–
CMIN/DF	1.244	< 3
CFI	0.968	> 0.95
GFI	0.904	> 0.9
TLI	0.956	> 0.9
RMSEA	0.042	< 0.06
PCLOSE	0.716	> 0.05

The model shows that factor variables fit the necessary convergent validity value, which is 0.7, and, in the same time, all factors AVE are more than > 0.5 (Hair, 2017). Further step is to check discriminant validity by calculating square root of AVE values and cross with the correlations weights of the variables (table 10). Discriminant Validity should be > 0.5 (Hair, 2017).

Table 10 – CR, AVE, Discriminant Validity

	CR	AVE	CRM	HRM	QM	KM	CA	CS	PRO	ME
CRM	**0,83**	**0,62**	**0,788**							
HRM	**0,90**	**0,75**	0,174	**0,866**						
QM	**0,89**	**0,80**	-0,037	-0,109	**0,894**					
KM	**0,85**	**0,73**	0,278	-0,112	0,311	**0,856**				
CA	**0,94**	**0,88**	0,157	-0,002	0,121	0,336	**0,939**			
CS	**0,92**	**0,84**	0,316	-0,009	0,198	0,193	0,001	**0,919**		
PRO	**0,84**	**0,64**	0,270	-0,030	-0,024	0,164	0,097	-0,003	**0,797**	
ME	**0,87**	**0,77**	0,182	0,041	0,013	0,138	0,170	-0,003	0,094	**0,876**

After CFA and convergent and discriminant validity analysis it's time to proceed with the theoretical model testing which is represented on figure 29.

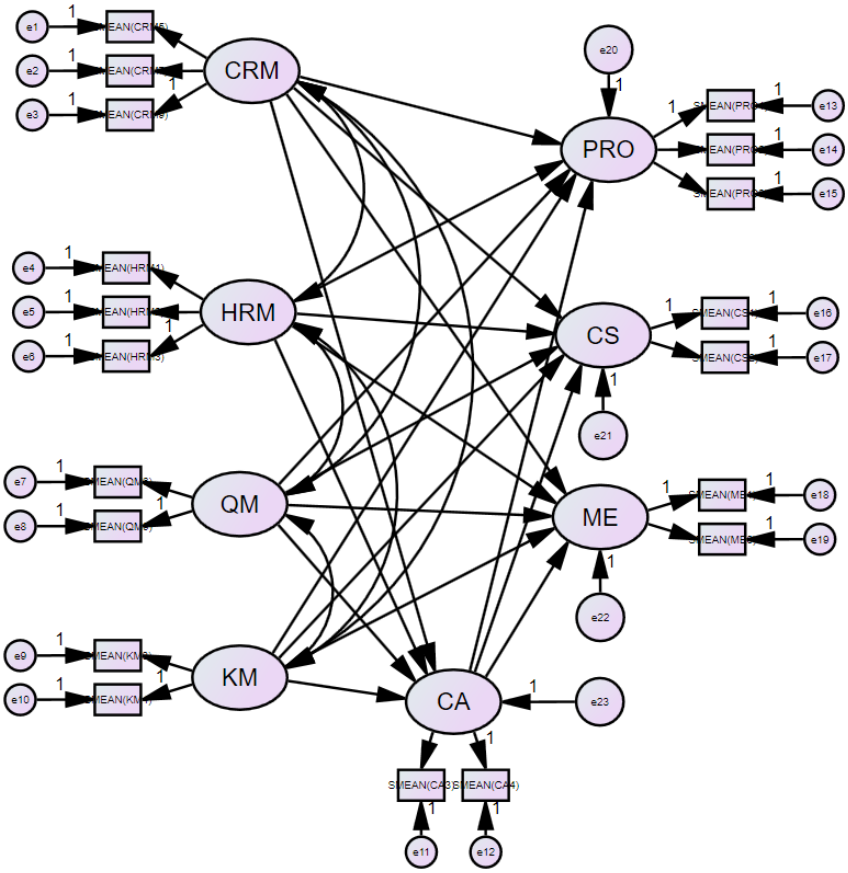


Figure 29 – Measurement CFA model fit

After the running Structural model test the results are as follows (table 11):

Table 11 – Measurement Structural model fit

Measures	Estimates	Thresholds
P-Value	0.038	< 0.05
CMIN	156.671	–
DF	127	–
CMIN/DF	1.234	< 3
CFI	0.969	> 0.95
GFI	0.901	> 0.9
TLI	0.958	> 0.9
RMSEA	0.041	< 0.06
PCLOSE	0.741	> 0.05

Model GFI and CFI > 0.9 and measures of TLI, RMSEA, PCLOSE show the applicability of the model for analysis at significance level of < 0.05 (P-Value 0.038 < 0.05). Thus, proceeding with the results analysis (table 12), the model test shows that CRM effects CS by B = 0.302 and p-value 0,013, which means positive impact of CRM. CRM has low-to-moderate effect on Profitability and at p-value < 0.05. Customer Relationship Management has positive effect on Market Effectiveness at p-value 0.018. There is low positive effect of Customer Relationship Management on Competitive Advantage At p-value 0.047.

Model results shows there is positive impact of Quality Management on Customer Satisfaction p-value 0.042. Also the insignificance of the result with p-value 0.211 thus Quality Management has no effect Profitability and positive effect on Market Effectiveness at significant p-value 0.013, and positive effect on Competitive Advantage at the significant level of p-value = 0.046 which is < 0.05.

Human Resource Management Module has no effect on Customer Satisfaction because of insignificant p-value of 0.650 and no impact on Profitability because of insignificance of p-value 0.543. Human Resource Management Module has positive impact on Market Effectiveness at level of significance 0.05 with p-value 0.032 and at significance of < 0,05 with p-value 0.043 Human Resource Management has low positive effect B = 0.027 on Competitive Advantage.

At significance < 0.05 with p-value 0.036 and B = 0.033 Knowledge Management positively effects Customer Satisfaction and at significance of p-value 0.006 on Profitability with low-moderate B = 0.107, at significance level < 0.05, p-value = 0.043 and B = 0.128 has positive effect on Market Effectiveness. At significant value of p-value 0.031 < 0.05 and B = 0.304 Knowledge Management has positive effect on Competitive Advantage.

Table 12 – ERP Impact analysis

Path	P-Value	B	Result
CRM → CS	0.013*	0.302	Positive impact
CRM → PRO	0.041*	0.241	Positive impact
CRM → ME	0.018*	0.167	Positive impact
CRM → CA	0.047*	0.063	Positive impact
QM → CS	0.042*	0.190	Positive impact
QM → PRO	0.211^{ns}	-0.051	**No impact**
QM → ME	0.013*	0.010	Positive impact
QM → CA	0.046*	0.025	Positive impact
HRM → CS	0.650^{ns}	-0.040	**No impact**
HRM → PRO	0.543^{ns}	-0.064	**No impact**
HRM → ME	0.032*	0.010	Positive impact
HRM → CA	0.043*	0.027	Positive impact
KM → CS	0.036*	0.033	Positive impact
KM → PRO	0.006*	0.107	Positive impact
KM → ME	0.043*	0.128	Positive impact
KM → CA	0.031*	0.304	Positive impact

*** p-value < 0.001, ** p-value < 0.01, * p-value < 0.05, ^{ns} non-significant

To conclude, most of the relationships between ERP modules variables and Company Performance variables show positive impact (13 out 16 relations) and speaking about average R-squared measures: that model explains the variance of Customer Satisfaction by 42% (value of 0.42), variance of Profitability 65% (value of 0.65) and the value of Market Effectiveness 71% (value of 0.71), which means that other factors that are not included into the final model explain the rest variance 0.58 for Customer Satisfaction, 0.35 for Profitability and 0.29 for Market Effectiveness.

By the implementing the mediator as Competitive Advantage, the model can test indirect effect of the ERP modules usage on Firm Performance effecting the mediator. Mediation test performed in Amos and shows the following results (table 13):

Table 13 – Mediation Effect of the Model

Mediation Path	P-value	Estimate	Lower	Upper	Mediation type
CRM → CA → ME	0.003**	0.010	-0.121	0.335	Partial mediation
CRM → CA → PRO	0.004**	0.034	-0.002	0.465	Partial mediation
CRM → CA → CS	0.029*	0.030	0.083	0.743	Partial mediation
HRM → CA → ME	0.391^{ns}	0.026	0.025	0.239	No mediation
HRM → CA → PRO	0.398^{ns}	-0.038	0.068	0.105	No mediation
HRM → CA → CS	0.295^{ns}	-0,050	0.068	0.145	No mediation
QM → CA → ME	0.018*	0.003	-0.081	0.236	Partial mediation
QM → CA → PRO	0.239^{ns}	-0.033	-0.168	0.081	No mediation
QM → CA → CS	0.004**	0.006	0.009	0.479	Partial mediation
KM → CA → ME	0.001**	0.051	-0.103	0.277	Partial mediation
KM → CA → PRO	0.042*	0,064	-0.080	0.302	Partial mediation
KM → CA → CS	0.033*	0,056	-0.182	0.302	Partial mediation

*** p-value < 0.001, ** p-value < 0.01, * p-value < 0.05, ^{ns} non-significant

The results show that through Mediator Competitive Advantage (CA) constructs Customer Relationship Management (CRM), Quality Management (QM), Knowledge Management (KM) have significant indirect effect on Customer Satisfaction (CS) and Market Effectiveness (ME), and the indirect effect on Profitability is shown by CRM and KM. The results show that mostly constructs have partial mediation because these constructs have direct and indirect effects on monitored dependent variables.

Finalizing, after testing the nature of relationships between Modules, Competitive Advantage and Company Performance, the analysis of direct and indirect effects it's shown that the model at the level of significance < 0.05 has the validity and let proceed the research with theoretical and managerial implications' development.

3.3 Theoretical Implication

From the point of view of the theoretical application of the results, we can distinguish that in this work a new model for assessing the impact of using an ERP system based on the modularity of ERP systems was formed: the model included those ERP system modules that are actively used in solutions for Additional Education Market Segment. Thus, the generated model allows to measure the impact of Customer Relationship Management, Human Resource Management, Knowledge Management and Quality Management modules on the three factors that form the basis of Firm Performance, especially, this applies to the continuing education market, where it is worth analyzing Firm Performance separately Customer Satisfaction (as business schools of continuing education are

based on consumer relations, this plays a key role in the B2C segment), Profitability and Market Effectiveness.

In this work, the model factors used were supplemented, adapted to the specifics of the analysis of ERP systems and the specifics of the market for additional education schools. Thus, such a model can be used for further studies of the influence of control systems and other solutions of ERP systems, this model can be adapted to most ERP systems, which will make it universal and applicable for any market and assess the impact of Customer Relationship Management, Human Resource Management, Knowledge Management and Quality Management on the effectiveness of companies in the relevant market.

This model also proposes to consider and analyze the effect of ERP modularity, the effect of each module separately, on the formation of the Competitive Advantage of the organization, which allows to determine which module makes a contribution and effect on the business performance of the organization through the Competitive Advantage, which reflects the mediation effect in the model and forms Indirect influence of factors of ERP system modules on Firm Performance factors. This approach allows to examine in detail the direct and indirect influence of factors, which allows to see the full picture of the use of ERP system modules on the formation of competitive advantage and business performance.

3.4 Managerial Implication

Given that the main stakeholders in this study are SMEs operating in Additional Education Market, based on the results obtained during the study, managerial implications are formed for them. Since this study, closing the research gap, provides an understanding of the final Value of ERP system implementation and usage, ERP systems can be recommended for implementation in schools, organizations and companies of additional education, substantiating this recommendation with the positive impact of the ERP system on Competitive Advantage and Company Performance, which, given the high competition in this market, can be an effective tool for implementing and, therefore, achieving necessary business goals and objectives.

Going deeper into the details of the research results, in particular, the ERP system has a positive effect on Customer Satisfaction, and can be used as a tool for an integrated approach to effectively creating relationships with customers, forming loyalty and company value in the eyes of the client. The ERP system has a positive effect on profitability, which confirms the feasibility of introducing a similar solution in the company of additional education, justifying the positive impact on the achievement of financial goals, and, therefore, allows the company to generate more resources for its further development. A positive impact on Market Effectiveness shows companies that by

implementing ERP systems, they contribute to the development of their own market share and the expansion of the number of branches, which allows achieving even greater results, having a synergistic effect on Profitability. The positive impact of the ERP system on Competitive Advantage leads to the conclusion that ERP is a tool by introducing which companies enhance competitiveness and form a Competitive Advantage. This, in turn, affects the quality of the product, its uniqueness, which distinguishes the company from its competitors, and gives an advantage in the market, therefore, potentially leads to the growth of regular customers, income and market share - the proven indirect effect shows that using ERP and strengthening the competency Advantage, companies, including, increase Company Performance in each direction.

Implementing ERP systems, companies are able to systematically work with such important aspects of the business as Customer Relationship Management, Human Resource Management, Quality Management and Knowledge Management, and taking into account the positive impact of each aspect separately, in particular, the Quality Management Module significantly affects Customer Satisfaction, i.e. product Quality Management is a tool using which companies get better business results, and while being part of an ERP system, it is a convenient tool that, when implementing Industry-Specific ERP, is ready to use and does not require customization. At the same time, the use of the Knowledge Management module forms a systematic work with Knowledge Management, which leads to a significant impact on competitive advantage.

Given the modularity of the ERP system and the possibility of customization and focus, if necessary, on certain modules, in order to obtain the necessary strategic results of the company: to improve Customer Satisfaction, take into account or focus on the use of modules Quality Management and Customer Relationship Management; to improve Profitability -– take into account or focus on Customer Relationship Management Module; to improve Market Effectiveness and / or Competitive Advantage - take into account or focus on Knowledge Management Module.

Thus, by implementing ERP solutions, as a case of industry-specific ERP solution for SMEs of Additional Education Market, managers and educational organization owners can potentially improve Competitive Advantage and Company Performance, taking into account Customer Satisfaction, Profitability, Market Effectiveness, which will allow nurture loyalty among customers and increase the number of regular customers, create a unique product and differ from competitors in the market, while achieving financial goals, generating more resources to achieve further strategic development goals and increase market share, as well as the number of branches in the future. It is worth noting that the results of the study cannot be generalized on generic ERP systems and other industry-specific ERP systems, and on results of SMEs operating in other markets.

3.5 Limitations and Further Research Development

Speaking about the limitations of the study, first of all, it is worth noting the number of respondents and the final sample size. In this study, testing of the model was carried out on 138 observations, while the quality of the results and their accuracy can be increased by increasing their number, which will allow more reasonable conclusions to be drawn.

As another limitations the following factors of this research should be mentioned: country case of Russia and specificity of the additional education market that form the specific environment for SMEs to operate with; the aspect of single case study – only one Education ERP system that focusing on Additional Education market is taken into research (because of the lack of other developers), industry specifics of additional education market and therefore unique limited ERP modules. Thus, it also should be mentioned that general and universal recommendations to implement such set of ERP modules for all markets are not applicable here.

It is also worth noting that another limitation is the lack of data to diversify the observed groups and moderation analysis, which would allow to analyze unique segments and the presence of differences between them and which ones based on moderation analysis by gender, age groups, entrepreneurial experience, number of subsidiaries. This approach would allow an even better understanding of Education ERP users by linking their activity of using the ERP system modules and Customer Satisfaction, Profitability, Market Effectiveness and Competitive Advantage. Perhaps it's also worth adding an additional category - education or an educational characteristic that describes the level of business competence (in this work, the Entrepreneurial Experience variable was such a characteristic) of the owner or top management of the company – perhaps the lack of business education is a consequence of low impact of ERP systems.

It is also worth noting that the average R-squared mean is that not all variables and factors are included in the model, since measures of variance explains Customer Satisfaction by 42%, Profitability by 65%, Market Effectiveness by 71%.

Speaking about the further development of the study, it is worth saying that the next study should increase the sample size, which will allow to obtain more accurate results, as mentioned above, and conduct a study of the differences between user groups of ERP systems. It is also worth noting that the work can be further developed by including other ERP systems in the industry of additional education, such as 1C, and include more modules in the model; but also further research development can include the investigation of ERP systems impact on company performance comparing two types of ERP systems – generic ERP and Industry specific ERP, exploring the impact on the same market among SMEs, which will reveal the difference in the impact on company performance among industry -specific ERP and generic ERP. The same approach can be used for research, including

SMEs, operating in different markets, in order to show statistical prove about the differences in terms of ERP impact on company performance.

Case observations

The results show that the use of the HRM module has practically no positive effect on Company Performance. In this case, for the company Liga Sporta as a developer of Education ERP can be recommended to identify the reasons, finalize the HRM module, conduct a study in order to understand whether the module is needed and important, and based on feedback, to identify what needs to be finalized and to include this in the tasks for further implementation and improvement ERP solution.

Summary

In the third chapter, to analyze the impact of the ERP system on the Company Performance of SMEs of additional education market, the CB-SEM method was used, which allowed to determine the direct and indirect impact of the ERP system, based on the influence of each module separately - CRM, HRM, KM, QM on Competitive Advantage and each dimension company performance Customer Satisfaction, Profitability, Market Effectiveness. This approach allowed to determine the unique influence of each module, and at the same time using the Competitive Advantage as a mediator, to determine the indirect effect of each module on Company Performance. Thus, using CRM, KM, QM modules, companies working in the continuing education segment strengthen Competitive Advantage, which in turn also leads to a positive impact of Company Performance. Formed Theoretical Contribution and Managerial Implications. And the basic Limitations are defined such as: industry specific study, single case of Education ERP, sample size, % of variance explained by model's constructs.

CONCLUSION

Currently, in the world of ERP, digitalization and automation systems and tools are actively developing, allowing SMEs and LEs companies to solve the necessary business tasks and develop, gaining an additional competitive advantage in terms of efficiency and ultimate company performance. However, at present there are companies that are not ready to implement such IT solutions, which is associated with high costs and risks, that the introduction and end use of the new system will ultimately benefit the company, confirming the feasibility of the decision to introduce such systems.

The purpose of this work is to investigate the influence of the nature of the ERP system on companies and their effectiveness in the market, while taking into account the influence of the ERP system on the formation of a competitive advantage.

In the course of the work, ERP systems, their types, functionality, modules, generic and industry-specific ERP solutions, and in particular the ERP system for Additional Education Market and their functional features, taking into account the specifics of Additional Education Market, were investigated. To study the impact of the ERP system, the model was formed based on information from an interview with representatives of Liga Sporta, which allowed us study the nature of the impact of ERP modules on Company Performance and Competitive Advantage of SMEs operating in Additional Education Market.

In this paper case specific model includes 4 modules of ERP system such as CRM, QM, HRM, KM, and as dependent factors include Competitive Advantage and 3 dimensions of Company Performance – Customer Satisfaction, Profitability and Market Effectiveness. The study was conducted among the owners of additional education in Russia, who are users of Education ERP and manage their schools with this solution. Speaking of the model - the whole model includes 52 items, the final model includes 19 items. As an impact measuring approach CB-SEM method was used.

As a result of the study this paper shows the final value of ERP systems for SMEs in the additional education market using the case of Education ERP and allow to form a clear understanding of ERP value by SMEs in that market showing how modules of such ERP system can impact, in particular, on Competitive Advantage, Profitability, Market Effectiveness and Customer Satisfaction, The results of the study on the example of the Education ERP case confirm the positive impact of the ERP system on Company Performance, and also show the indirect positive effect of the ERP system on each Company Performance factor through the influence of the ERP system on the Competitive Advantage for SMEs, operating in Additional Education Market.

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APPENDIX 1. SURVEY DESIGN

		Part 1. Introduction
		Dear Respondent, This survey examines the impact of the ERP system on the business performance of among schools and organizations of additional education, this research will allow getting a complete comprehending about a direct impact of the ERP system and its tools on the business performance of your schools. Choose the answers that are most relevant to your opinion - there are no right or wrong answers. The survey will take 5-6 minutes. Participation in this survey is anonymous. The opinion of everyone is important. Thank you in advance for your input and time!
		Part 2: Customer Relationship Management in ERP
		Customer Relationship Management (Martin Reinmann, 2009);
Q1	–	CRM1: You actively use ERP to segment customers (leads).
Q2	–	CRM2: You actively use ERP to identify more valuable customers.
Q3	–	CRM3: You actively use ERP to interact with lost customers.
Q4	–	CRM4: You actively use ERP to restore relationships with valuable inactive customers.
Q5	–	CRM5: You actively use ERP to increase the average life time (LTV) of your customers.
Q6	–	CRM6: You actively use ERP to better understand the needs of your customers.
Q7	–	CRM7: You actively use ERP to manage sales stages.
		Part 3: Quality Management
		Quality Management (Patyal V. 2017)
Q8	–	QM1: You actively use ERP to create a convenient school schedule.
Q9	–	QM2: You actively use ERP to select students into groups according to their level of training.
Q10	–	QM3: You actively use ERP to improve the quality of your classes.
Q11	–	QM4: You actively use ERP to improve student progress.
Q12	–	QM5: You actively use ERP to increase attendance at your school.
Q13	–	QM6: You actively use ERP to increase the involvement of students in your school.
Q14	–	QM7: You actively use ERP to create value for your customers.
		Part 4. Human Resource Management
		Human Resource Management (Gong Y. 2009)
Q15	–	HRM1: You actively use ERP to set and manage the tasks of your employees.
Q16	–	HRM2: You actively use ERP to track and monitor the performance of your employees.
	–	HRM3: You actively use teacher ratings in ERP to motivate educators.
Q17 Q18	–	HRM4: The rating of teachers positively affects the motivation of teachers in your school.
Q19	–	HRM5: You actively use ERP to form KPI employees.
Q20	–	HRM6: You actively use ERP to improve employee management.

		Part 5. Knowledge Management
		Knowledge Management (Acar Fatih M. 2017)
Q21	–	KM1: Your teachers actively use educational materials and techniques in ERP.
Q22	–	KM2: Your educators actively use ERP to work with materials and best practices of other educators in the network.
Q23	–	KM3: You actively use ERP to transfer information, accumulate knowledge and experience of your school.
Q24	–	KM4: You actively use ERP to enhance employees' competencies.
Q25	–	KM5: You actively use ERP to obtain the necessary information related to the activities of the school.
Q26	–	KM6: You actively use ERP to exchange successful practices and knowledge with network partners.
Q27	–	KM7: You are actively implementing the knowledge and experience gained in ERP in your products and services.
		Part 6. Competitive Advantage
		Competitive Advantage (Nuryakin, 2018)
Q28	–	CA1: Your school has attractive price offer.
Q29	–	CA2: Advantage of product quality and services provided
Q30	–	CA3: It's hard for competitors to repeat your school's product and service.
Q31	–	CA4: Your school's product has unique characteristics and stands out from competitors.
		Part 7. Business Performance
		Customer Satisfaction (Martin Reimann, 2009)
Q32	–	CS1: Your school creates value for the consumer.
Q33	–	CS2: Your customers are satisfied with the product and service provided.
Q34	–	CS3: Your school successfully maintains relationships with valuable (regular) customers
Q35	–	CS4: Your school creates customer loyalty
Q36	–	CS5: There is a decrease in customer retention.
		Profitability (Martin Reimann, 2009)
Q37	–	PRO1: Your school is cost-effective and profitable (not considering the pandemic).
Q38	–	PRO2: Your school's activities allow you to achieve your school's financial goals (without considering the pandemic).
Q39	–	PRO3: Your school is a positive return on your investment (not considering the pandemic).
Q40	–	PRO4: There is an increase in the share of profits in school revenue (not taking into account the pandemic).
		Market Effectiveness (Martin Reimann, 2009)
Q41	–	ME1: There is an increase in your school's market share (not including the pandemic).
Q42	–	ME2: There is an increase in sales revenue at your school (not including the pandemic).
Q43	–	ME3: There is an active flow of new customers to your school (not considering the pandemic).

Q44	–	ME4: There is an increase in sales to existing customers (not taking into account the pandemic).
Q45	–	ME5: The success of your products or services is higher than that of your competitors (other brands of schools).
Q46	–	ME6: Your market share exceeds that of competitors in your city / territory.
		Part 8: Demographics
Q47		Gender
Q48		Age:
	–	18-25 years old
	–	26-33 years old
	–	34-41 years old
	–	42-49 years old
	–	50 years old and older
Q49		Number of schools that you have for now:
	–	1 школа
	–	2-3 школы
	–	4-5 школы
	–	6 и больше
Q50		Your school (-s) brand:
	–	Юниор
	–	Спартак Юниор
	–	Русский балет
	–	Юниоркод
	–	ШАГИ
	–	Get English
	–	Эмоциональный интеллект
	–	Лига блогеров
	–	Main Cast
	–	Ctrl Play
	–	ЕГЭ
	–	Школа Бенуа
	–	Российская международная школа математики
Q51		Your entrepreneurial experience
	–	Less than 1 year
	–	1-3 years
	–	3-5 years
	–	More than 5 years
Q52		Evaluate how often you or your employees use ERP system:
	–	Regularly every day (several times per day)
	–	Once per day
	–	Once per 2-3 days
	–	Once per week
	–	Several times per month

APPENDIX 2. SURVEY DESIGN IN RUSSIAN

		Часть 1: Введение
		Уважаемый респондент, Этот опрос исследует влияние ERP системы на бизнес-эффективность компаний, школ и организаций дополнительного образования, что позволит получить прямое представление о непосредственном влиянии системы Education ERP и ее функционала на бизнес-результаты и эффективность ваших школ. Выбирайте ответы, наиболее соответствующие вашему мнению - здесь нет правильных или неправильных ответов. Прохождение опроса займет 5-6 минут. Участие в этом опросе анонимно. Важно мнение каждого. Заранее благодарим за ваш вклад и время!
		Часть 2: Управление отношениями с потребителями в ERP
		Customer Relationship Management (Martin Reinmann, 2009; Yi-fen Su A. 2010);
B1	–	CRM1: Вы активно используете ERP для сегментации клиентов (лидов).
B2	–	CRM2: Вы активно используете ERP для идентификации более ценных клиентов.
B3	–	CRM3: Вы активно используете ERP для взаимодействия с потерянными клиентами.
B4	–	CRM4: Вы активно используете ERP для восстановления отношений с ценными неактивными клиентами.
B5	–	CRM5: Вы активно используете ERP для повышения среднего срока жизни (LTV) ваших клиентов.
B6	–	CRM6: Вы активно используете ERP для лучшего понимания потребностей ваших клиентов.
B7	–	CRM7: Вы активно используете ERP для управления этапами продаж.
		Часть 3: Управление качеством
		Quality Management (Patyal V., 2017)
B8	–	QM1: Вы активно используете ERP для составления удобного графика занятий школы.
B9	–	QM2: Вы активно используете ERP для подбора учеников в группы по уровню их подготовки.
B10	–	QM3: Вы активно используете ERP для повышения качества занятий.
B11	–	QM4: Вы активно используете ERP для улучшения прогресса учеников.
B12	–	QM5: Вы активно используете ERP для повышения посещаемости вашей школы.
B13	–	QM6: Вы активно используете ERP для повышения вовлеченности учеников вашей школы.
B14	–	QM7: Вы активно используете ERP для создания ценности для ваших клиентов.

		Часть 4: Управление командой
		Human Resource Management (Gong Y., 2009)
B15	–	HRM1: Вы активно используете ERP для постановки и управления задачами ваших сотрудников.
B16	–	HRM2: Вы активно используете ERP для отслеживания и контроля результативности ваших сотрудников.
B17	–	HRM3: Вы активно используете рейтинг педагогов в ERP для мотивации педагогов.
B18	–	HRM4: Рейтинг педагогов положительно влияет на мотивацию педагогов в вашей школе.
B19	–	HRM5: Вы активно используете ERP для формирования KPI сотрудников.
B20	–	HRM6: Вы активно используете ERP для повышения эффективности управления сотрудниками.
		Часть 5. Управление знаниями
		Knowledge Management (Acar Fatih M., 2017)
B21	–	KM1: Ваши педагоги активно используют образовательные материалы и методики в ERP.
B22	–	KM2: Ваши педагоги активно используют ERP для работы с материалами и наработками других педагогов сети.
B23	–	KM3: Вы активно используете ERP для передачи информации, накопления знаний и опыта вашей школы.
B24	–	KM4: Вы активно используете ERP для повышения компетенций.
B25	–	KM5: Вы активно используете ERP для получения необходимой информации, связанной с деятельностью школы.
B26	–	KM6: Вы активно используете ERP для обмена успешными практиками и знаниями с партнерами сети.
B27	–	KM7: Вы активно внедряете накопленные в ERP знания и опыт в ваши продукты и услуги.
		Часть 6: Конкурентное преимущество
		Competitive Advantage (Nuryakin, 2018)
B28	–	CA1: У вашей школы привлекательное ценовое предложение.
B29	–	CA2: Ваша школа обладает преимуществом - качество продукта и предоставляемых услуг.
B30	–	CA3: Конкурентам сложно повторить продукт вашей школы и качество оказываемого сервиса.
B31	–	CA4: Продукт вашей школы обладает уникальными характеристиками и выделяется на фоне предложений конкурентов.
		Часть 7: Бизнес-эффективность
		Customer Satisfaction (Martin Reimann, 2009)
B32	–	CS1: Ваша школа создает ценность для потребителя.
B33	–	CS2: Ваши клиенты удовлетворены предоставляемыми продуктом и услугами.
B34	–	CS3: Ваша школа успешно поддерживает отношения с ценными (постоянными) клиентами.
B35	–	CS4: Ваша школа создает лояльность среди ваших клиентов.
B36	–	CS5: Наблюдается снижение оттока клиентов (не учитывая пандемию).

		Profitability (Martin Reimann, 2009)
B37	–	PRO1: Ваша школа рентабельна и приносит доход (не учитывая пандемию).
B38	–	PRO2: Деятельность вашей школы позволяет достигать финансовых целей школы (не учитывая пандемию).
B39	–	PRO3: Ваша школа – это позитивная отдача на вложенные инвестиции (не учитывая пандемию).
B40	–	PRO4: Наблюдается рост доли прибыли в выручке школы (не учитывая пандемию).
		Market Effectiveness (Martin Reimann, 2009)
B41	–	ME1: Наблюдается рост доли рынка вашей школы (не учитывая пандемию).
B42	–	ME2: Наблюдается рост выручки от продаж в вашей школе (не учитывая пандемию).
B43	–	ME3: Наблюдается активный поток новых клиентов в вашу школу (не учитывая пандемию).
B44	–	ME4: Наблюдается увеличение продаж существующим клиентам (не учитывая пандемию).
B45	–	ME5: Успех ваших продуктов или услуг выше, чем у ваших конкурентов (другие бренды школ).
B46	–	ME6: Ваша рыночная доля превышает долю конкурентов в вашем городе / территории.
		Часть 8: Демографические данные
B47		Пол
B48		Возраст:
	–	18-25 лет
	–	26-33 лет
	–	34-41 лет
	–	42-49 лет
	–	50 лет и старше
B49		Общее количество ваших школ на данный момент:
	–	1 школа
	–	2-3 школы
	–	4-5 школы
	–	6 и больше
B50		Выберете направления ваших школ
	–	Юниор
	–	Спартак Юниор
	–	Русский балет
	–	Юниоркод
	–	ШАГИ
	–	Get English
	–	Эмоциональный интеллект
	–	Лига блогеров
	–	Main Cast
	–	Ctrl Play
	–	ЕГЭ

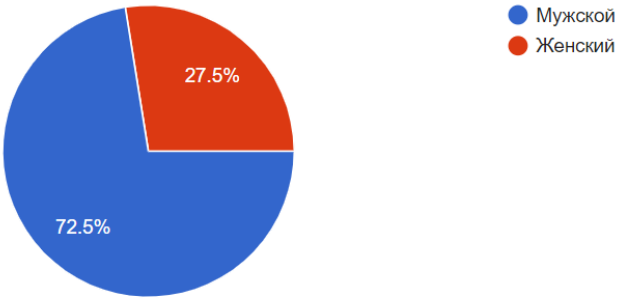
	–	Школа Бенуа
	–	Российская международная школа математики
B51		Ваш предпринимательский опыт
	–	Меньше 1 года
	–	1-3 года
	–	3-5 лет
	–	Более 5 лет
B52		Оцените, насколько часто вы или ваши сотрудники используете ERP для управления школой
	–	Регулярно каждый день (несколько раз в день)
	–	Раз в день
	–	Раз в 2-3 дня
	–	Раз в неделю
	–	Несколько раз в месяц

APPENDIX 3. DEMOGRAPHIC SURVEY RESULTS 1

Демографические данные

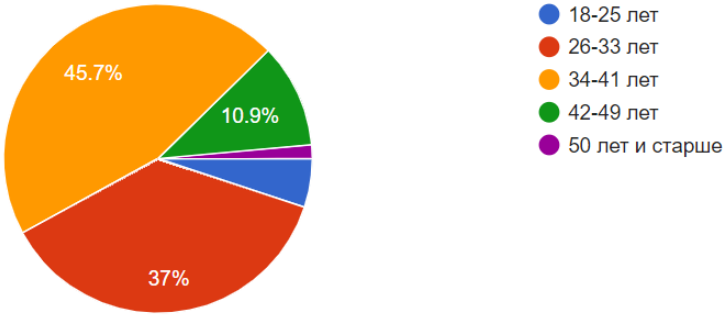
Пол

138 responses



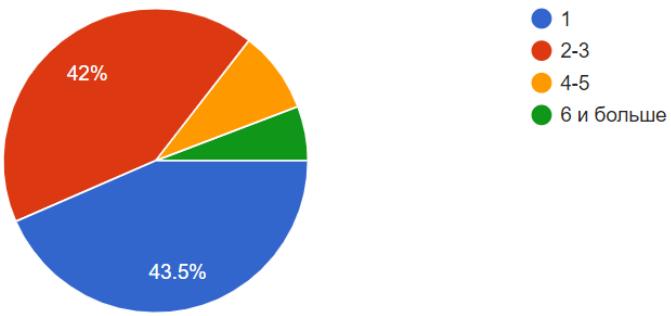
Возраст

138 responses



Общее количество ваших школ на данный момент

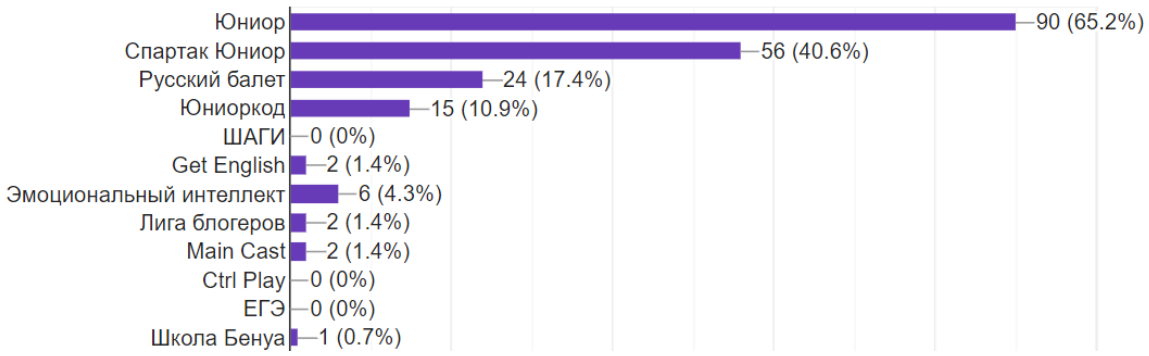
138 responses



APPENDIX 4. DEMOGRAPHIC SURVEY RESULTS 2

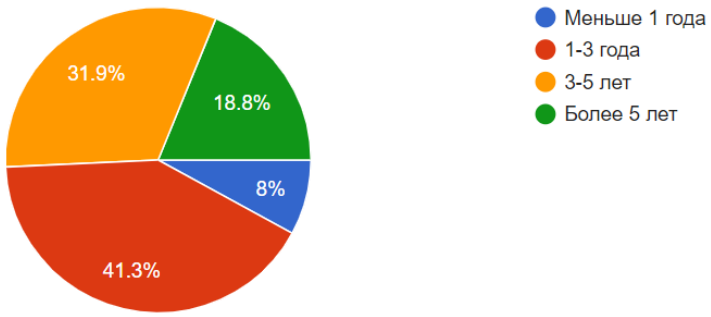
Выберете направления ваших школ

138 responses



Ваш предпринимательский опыт

138 responses



APPENDIX 5. ROTATED COMPONENT MATRIX

Rotated Component Matrix

	Component							
	1	2	3	4	5	6	7	8
SMEAN(CRM4)		,856						
SMEAN(CRM6)		,816						
SMEAN(CRM7)		,683						
SMEAN(QM6)						,911		
SMEAN(QM7)						,877		
SMEAN(HRM1)	,892							
SMEAN(HRM2)	,892							
SMEAN(HRM3)	,812							
SMEAN(KM3)								,865
SMEAN(KM4)								,857
SMEAN(CA3)				,952				
SMEAN(CA4)				,925				
SMEAN(CS1)					,928			
SMEAN(CS2)					,910			
SMEAN(PRO1)			,804					
SMEAN(PRO2)			,733					
SMEAN(PRO3)			,850					
SMEAN(ME1)							,905	
SMEAN(ME6)							,846	

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.